

User's manual



Pronto_ISDN User's manual Ver 7.0



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ABOUT THE PRONTO_ISDN 2 Ver 7.x



The review of this user manual for Pronto ISDN is valid for Pronto ISDN 3 as well as Pronto ISDN 2 with version 7.0 or later.

The Pronto ISDN 2 with version 7 or later has considerable modifications in relation to previous versions because this unit belongs to a new production serial (it is known as Pronto 2 MK4) based on the Pronto 3 hardware. In this section you can find a brief guidebook which lets you know the new characteristics and the aspects to bear in mind by the Pronto 2 users of previous versions.

□ New characteristics of the ISDN Pronto 2 from version 7.0:

Basically, a Pronto ISDN 2 with version 7.0 or later is a Pronto ISDN 3 which can't support MPEG Layer III mode. This means that this new version of Pronto 2 has the following differences in relation to a Pronto 2 of a previous version:

1. NEW MODES IN MPEG 64 Kbps:

In the version 7.0 or later, 32 kHz sampling frequency is included in MPEG Layer II 64 Kbps.

2. DUAL CODEC IN COMMUNICATION MPEG LII 64 Kbps MONO:

With the new version you can work not only in G711 and G722, but also in codec dual mode as well as in MPEG Layer II mode.

3. INDEPENDENT ENCODER AND DECODER

The automatic search menu has two options and it works in the same way as it does a Pronto 3:

- **DEPENDENT:** The encoder will work in the same mode specified by the decoder. This way is similar to the one in which the automatic mode was activated in Pronto 2 with version previous to 7.0.
- **INDEPENDENT:** This is the new mode of automatic search supported by Pronto 2 with version 7.0 or later. The decoder will work according to the detected mode, but the encoder will work according to the mode selected by the user in each line. I.e. this mode allows to send in G722 mode and receive in MPEG layer II.

4. USE OF THE EXTERNAL PHONE IN MPEG LAYER II MONO MODE:

The external phone works in the same mode in MPEG Layer II MONO communications at 64 Kbps than in G711 or G722 mode. That means that it can be used as audio interface too.

5. AES/EBU INTERFACE WITH THE OPTION OF SELECTING EXTERNAL SYNC SIGNAL:

The selection menu of the AES/EBU digital audio allows to select in input audio or an external sync signal as a sync signal.

El menú de selección de audio digital AES/EBU permite seleccionar como señal de sincronismo el audio de entrada o una señal de sincronismo externo.

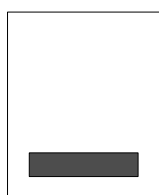
6. AUDIO INPUT LEVEL INDICATOR:

This new version includes an input audio level detector which is used to monitor if there is audio in the input of the unit. In the lower right corner where you can see the kind of input audio selected there are two characters which show that as follows:

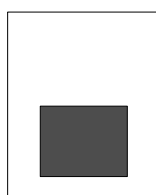
L	1			C	O	N	N	E	C	T	E	D			
	G	7	2	2		F	R	A	M	E	D		■	A	■

The character on the left is for the left channel and the right character for the right channel.

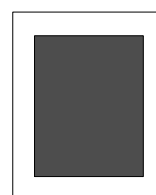
The icons used are the following ones:



NO AUDIO



AUDIO



OVERLOAD



¡ BEWARE!

The updating of Pronto_ISDN 2 with version 7.0 or later needs ProntoFlash version 2.5.0 or higher.

Since 7.0 version, the upgrading files will have .fsh extensión instead of .p2c as it was in previous versions

❑ Points to take into consideration in relation to Pronto 2 of versions previous to 7.0:

Given that this new version of Pronto 2 is based on a different hardware, the Pronto 2 users with previous versions will take into account which follows:

1. **The MPEG-CCS mode for communications at 128 Kbps has been removed in the Pronto 2 V7.0 or later.**

2. **To establish a call at 128Kbps it is necessary to call by both lines:**

When one communication at 128 Kbps is established, the second call won't be done automatically and it will be necessary to access the call menu of line 2 in order to establish the communication by this line. This is an important difference with previous version of Pronto 2.

The same happens when the remote control connector is used to make automatic calls to the numbers stored in index 1 and 2 of the phonebook.

3. **To stop a call at 128 Kbps is necessary to hang up each line independently:**

Unlike Pronto 2 previous versions, when you stop a communication at 128 Kbps, the second line won't stop automatically if the first communication is stopped. It will be necessary to press the END 2 button in order to stop the call of the second line.

The same happens when the remote control connector is used to disconnect calls in a remote mode.

4. **Pronto 2 with version previous to 7.0 can't be upgrading to version 7.0 or later:**

Due to the Pronto 2 V 7.0 or later are based on a new hardware, it is not possible to upgrade production versions previous to V 7.0. The upgrading files are known because of their name, in which is shown the version number, as well as for their extension: .p2c for previous versions to V 7.0 and .fsh for V 7.0 or later.

5. **The remote control connector is not compatible between Pronto 2 with versions previous to 7.0 and pronto 2 V 7.0 or later:**

The differences between the two versions are shown in this table:



Pin	Pronto 2 Ver <7.0	Pronto 2 Ver 7.0 or later
6	DGND	NC
7	DGND	NC
8	+15VA	GND
15	NC	AGND

6. **The remote control protocol of the Pronto 2 V 7.0 or later is compatible with previous versions:**

If a Pronto 2 V 7.0 or later is connected to a remote control software created for a Pronto 2 with a previous version, it will work with no problems. However, it won't support the new features included in the new version. The MPEG-CCS mode will be refused with an error message because it is not supported in the new version.



In order to know new commands supported by version 7.0 or later of Pronto 2, please contact support@prodys.net.

ABOUT THIS MANUAL



The review of this user manual for Pronto ISDN is valid for Pronto ISDN 3 as well as Pronto ISDN 2 with version 7.0 or later.

PRONTO_ISDN includes two communications interfaces: ISDN terminal adapter and X.21 interface in the same unit.

Major part of this manual makes reference to the PRONTO_ISDN version with ISDN terminal adapter. However, last part of this manual refers to the operation when the X.21 interface is used.

The information is arranged in the following sections:

□ PRONTO_ISDN WITH TERMINAL ADAPTER

BLOCK LAYOUT

In this chapter there is a description in the form of a block layout of all the parts of the unit.

OPERATION

The PRONTO_ISDN is configured, controlled and reports to the user via a micro-controller system that can be accessed from different types of interfaces. In this chapter is described each one of them in the following sections:

- FRONT PANEL : Control and configuration keys.
- DISPLAY
- MENU: Complete description of the menu options.
- EXTERNAL TELEPHONE: The use of the external telephone connected to the RJ11 socket on the front panel.
- REMOTE CONTROL: Description of the PRONTO_ISDN remote control.

DISPLAY INFORMATION FIELDS

Description of how the DISPLAY arranges the information to show the current line status and an explanation of each one of the messages showed.

FREQUENTLY ASKED QUESTIONS

In this chapter the user can find answers to the most common problems working with the PRONTO_ISDN.

CONNECTORS

Description of the rear panel connectors.

JUMPERS

Description of the configuration jumpers located inside the equipment.

APPENDIX A: TECHNICAL SPECIFICATIONS

APPENDIX B: MENU TREE STRUCTURE

□ PRONTO_ISDN WITH X21 INTERFACE

OPERATION

In this chapter is described each one of them in the following sections:

- FRONT PANEL : Control and configuration keys.
- DISPLAY
- MENU: Complete description of the menu options.

DISPLAY INFORMATION FIELDS

Description of how the DISPLAY arranges the information to show the current line status and an explanation of each one of the messages showed.

X21 CONNECTOR

Description of the X21 connector.

APPENDIX C: MENU TREE STRUCTURE

I. PRONTO_ISDN WITH ISDN TERMINAL ADAPTER



The microswitch no. 2 allows the user to select the communication interface he requests (ISDN terminal adapter or X21 interface). The following chapters of this manual refer to the operation of PRONTO_ISDN when the ISDN terminal adapter is selected. To configure the unit in this mode, microswitch no. 2 must be in UP position before starting up the unit.

I.1. BLOCK LAYOUT

One of the most unique features of the **PRONTO_ISDN** is that it can operate as a dual codec independently of the coding mode selected in each line. It can manage two separate bidirectional communications (when we mention its ISDN interface we refer to line 1 and line 2). The only limitation is based on the number of audio inputs and outputs which are two and which do not allow us to work in DUAL and STEREO modes through each 64 Kbps lines in the ISDN terminal adapter. The following block layout describes its most important features.

I.1.1 AUDIO INTERFACE

The **PRONTO_ISDN** can either work with analog audio (two inputs and two outputs, all electronically balanced) and digital audio in AES/EBU format – one of the two can be selected from the menu in the unit configuration section. When the **PRONTO_ISDN** works as a dual G711/G722/MPEG MONO LII-LIII codec, that is in independent mode through each communications line, inputs and outputs are assigned as follows:

The left channel audio I/O is used for the audio signals routed to line 1 and the right channel audio I/O is used for the audio signals routed to line 2.

The digital inputs and outputs can work at any sampling frequency 32, 44.1 or 48 KHz supported in AES/EBU standard, regardless of the selected mode (G711, G722 or MPEG Layer II/III). The synchronization clock can be either external or direct from the AES/EBU audio input.

The **PRONTO_ISDN** also has an auxiliary audio I/O via a RJ11 socket to which a conventional analog telephone can be connected and used instead of one of the I/O channels.

The telephone works regardless of whether the type of selected input is analog or digital.

The telephone can also be used to control some of the audio codec functions by using the multi-frequency tones. For example: to make or answer a call or to configure the coding mode previously to establishing a communication by sending some particular combination of multi-frequency tones.

Regardless of whether or not the auxiliary telephone is used, the audio received on either of the two communications lines can be placed on hold (the person at the other end of the line does not enter into the programme) or on air, using the ON AIR 1 and ON AIR 2 control keys on the front panel, or using the two inputs available on its remote control.

In G711 mode, **PRONTO_ISDN** operates in a way that is very similar to that of a telephone hybrid.

The analog outputs levels can be configured to 0, +4 or +6 dB using jumpers inside the equipment.



When a communication is established in G711 mode, the audio output is automatically placed on hold, while in any other mode (G722 or MPEG) it is automatically passed on air.

I.1.2 AUDIO DSP

PRONTO_ISDN has two Motorola 56309 DSP's for audio encoding/decoding under the different compression algorithms the unit supports. Either one can separately encode/decode two audio signals even in different formats, allowing bidirectional communications by compressing the audio in different formats (i.e. transmission in G722 and reception in MPEG LII/III MONO). The compression algorithms the unit supports are as follows:

□ G711

When working in G711 mode, it is possible to establish communications with the analog telephone network, so the **PRONTO_ISDN** operates in a way that is very similar to that of a hybrid telephone, with the advantage that the digital connection is free of impedance adaptation problems (the separation between transmission and reception depends only on that supplied by the network). For those communications where the telephone network does not offer a good separation between the transmitted and received signal, there is the possibility to activate an electrical **echo canceller** similar used in the digital telephone hybrids.

The mode selection can be manually made on each line previous to establishing a communication or can be detected automatically on an incoming call.

□ G722

When voice communications require high quality and the delay is important, the most appropriate compression algorithm is G722. The PRONTO_ISDN can operate either in G722 with statistical framing or in H221/H242 with compatibility guarantee with other G722 codecs at present available.

□ MPEG Layer II/III

Differently to PRONTO_ISDN 1 and PRONTO_ISDN 2 versions before 7.0, the PRONTO_ISDN 2 ver. 7.0 or later and Pronto_ISDN 3 support also dual communications when the selected algorithm is MPEG Layer II. Moreover, the Pronto_ISDN 3 supports the same modes corresponding to MPEG Layer III standard. Either in Layer II or Layer III, the unit can operate in MONO, DUAL or JOINT STEREO at 48, 32 or 24 KHz sampling frequency. The bit rates available will depend on the communications interface used (ISDN terminal adaptor or X.21). For ISDN communications: 64 and 128 Kbps, and for X.21 port communications: 64, 128, 256.

When working at 128 Kbps in ISDN communications and since the communication interface is connected to an ISDN basic access (two B channels at 64 Kbps each), it is necessary to program a communication protocol to carry out the "inverse multiplexing". This consists of dividing the information stream in two 64 Kbps channels when transmitting the coded audio and of rebuilding the 128 Kbps from the two data channels received when receiving the audio. PRONTO_ISDN supports the most widely used standards by other codecs in the market guaranteeing its compatibility with other brands. It is possible to set the inverse multiplexing according to the ITU J52 standard, and by "bonding" referred in the option menu as CCSTELOS as compatible mode with CCS or TELOS codecs.

Automatic Searching: The PRONTO_ISDN is able to detect automatically the compression mode used by the unit to which it is connected. When the decoder DSP frames the audio received, there are two possible operation modes:

Independent mode: In this case, the codec always works in the mode selected by the user regardless of the mode detected by the decoder.

Dependent mode: In this audio automatic framing mode, the codec adopts the mode detected by the decoder. It only works when a call is received.

The following configuration are possible in PRONTO_ISDN depending on the selected automatic searching mode

A) PRONTO_ISDN WORKING WITH THE ISDN TERMINAL ADAPTER:

DEPENDENT MODE

LINE 1		LINE 2	
ENCODER	DECODER	ENCODER	DECODER
G711	G711	G711	G711
G711	G711	G722	G722
G722	G722	G711	G711
G722	G722	G722	G722
MPEG LII/LIII 64 MONO	MPEG LII/LIII 64 MONO	G711	G711
MPEG LII/LIII 64 MONO	MPEG LII/LIII 64 MONO	G722	G722
G711	G711	MPEG LII/LIII 64 MONO	MPEG LII/LIII 64 MONO
G722	G722	MPEG LII/LIII 64 MONO	MPEG LII/LIII 64 MONO
MPEG LII/LIII 64 1DUAL/JS	MPEG LII/LIII 64 DUAL/JS	It is possible to make or receive a call for line 2. The transmitted audio through this line is the same transmitted through line 1.	
MPEG LII/LIII 128 MONO/DUAL/ JS	MPEG LII/LIII 128 MONO/ DUAL/JS		

INDEPENDENT MODE

LINE 1		LINE 2	
ENCODER	DECODER	ENCODER	DECODER
G722	G722 or MPEG LII/LIII 64	G722	G722 or MPEG LII/LIII 64
MPEG LII/LIII 64 MONO	G722 or MPEG LII/LIII 64	MPEG LII/LIII 64 MONO	G722 or MPEG LII/LIII 64
G722	G722 or LII/LIII 64	G711	G711
G711	G711	G722	G722 or MPEG LII/LIII 64
MPEG LII/LIII 64 MONO	G722 or MPEG LII/LIII 64	G711	G711
G711	G711	MPEG LII/LIII 64 MONO	G722 or MPEG LII/LIII 64
G722 or MPEG LII/LIII "CCSTELOS"	MPEG LII/LIII "CCSTELOS"	G722 or MPEG LII/LIII "CCSTELOS"	MPEG LII/LIII "CCSTELOS"
MPEG LII/LIII "CCSTELOS"	G722 or MPEG LII/LIII 64	MPEG LII/LIII "CCSTELOS"	G722 or MPEG LII/LIII 64



Layer III only available in Pronto_ISDN 3

B) PRONTO_ISDN WORKING WITH X21 INTERFACE:

LINE 1	
ENCODER	DECODER
X21 @ 64 Kbps	
G722	G722
MPEG LII/LIII 64 MONO/DUAL/JS	MPEG LII/LIII 64 MONO/DUAL/JS
G722	G722 or MPEG LII/LIII 64
MPEG LII/LIII 64 MONO	G722 or MPEG LII/LIII 64
X21 @ 128 Kbps	
MPEG LII/LIII 128 MONO/DUAL/ JS	MPEG LII/LIII 128 MONO/ DUAL/JS
X21 @ 256 Kbps	
MPEG LII/LIII 256 DUAL/ JS	MPEG LII/LIII 256 DUAL/JS

I.1.3 COMMUNICATIONS

The PRONTO_ISDN has two communications interfaces: an ISDN terminal adapter and a X.21 port.

❑ ISDN Terminal adapter:

This device makes and answers calls, sends line status information (connected, disconnected, calling, etc) and of course sends and receives the data. It can independently handle two 64 kbps data channels (channels B1 and B2 on a basic ISDN access line), so that the **PRONTO_ISDN** distinguishes between lines 1 and 2.

It supports different ISDN protocols (EURO_ISDN, DMS100, 5ESS and NAT1). It is specifically designed for connection to a basic rate ISDN interface (S_0 connection point). There are two RJ45 connectors for ISDN connections; one of these is for S/T (S_0) interface connection and the other one is for U interface connection. The U interface must be only used when the NT1 has been installed on the unit and the selected ISDN protocol is one of the following: DMS100, 5ESS or NAT1. To allow bus configuration, the terminal adaptor offers the possibility of connecting two 100 Ohm resistors so that it acts as the bus termination equipment.



In EISDN, the ISDN line must be connected to the S/T RJ45 connector (S₀ interface).

Moreover to the typical functions, such as making, answering or releasing calls, it offers the following possibilities:

- Assigning a local number to each line so that it only accepts calls made to that number.
- Recognition of the calling number and the possibility of accepting the call or not.

❑ X.21 Interface:

PRONTO_ISDN can also operate with a X.21 interface enhancing possibilities of connecting the unit to other digital communication networks (dedicated lines, communications satellites, radio links). The bit rates supported are 64, 128, 256 and 384 Kbps (this last one only in versions posterior to 2.0).

I.1.4 CONTROLLER

The **PRONTO_ISDN** offers various configuration and control possibilities:

❑ FRONT PANEL KEYPAD

All the functions available in the **PRONTO_ISDN** can be accessed from the keypad on the front panel of the unit. A display provides information to the user on what is happening at all times. The control keys are grouped as follows:

MENU: The \Leftarrow , \Uparrow , \Rightarrow keys allow movement through the menu tree structure and the MENU/ENTER key selects the required option.

DIALLING: Keypad for dialling calls.

CALL1-2 : These keys allow quick access to the dialling options on the menu, to make the procedure easier. They also display the calling or called number when the associated line is connected or accept an incoming call when the associated line is in the manual answer mode.

END 1-2: These keys terminate a communication.

ON AIR 1-2: Control keys for placing a call on air or on hold.

❑ EXTERNAL TELEPHONE

Some menu options can be accessed using multi-frequency tones. The chapter on operations with an external telephone provides further details.

❑ REMOTE CONTROL FROM A PC

The DB 9 connector on the rear panel of the unit includes an RS 232 interface for controlling the **PRONTO_ISDN** from a PC or dedicated terminal following the commands protocol implemented in the unit.

❑ REMOTE CONTROL BY SIGNAL GROUNDING

The DB 15 connector on the rear panel also includes control lines that give the control engineer access to the ON_AIR functions simply by grounding a contact. There are other two lines that permit to make a call automatically through each one of them to the numbers saved in index 1 and 2 in the phonebook. It is also possible to monitor either incoming calls on both lines (RING 1 and RING 2 signals) or line status as well as whether the audio is framed or not.

II. OPERATION

The **PRONTO_ISDN** is configured, controlled and reports to the user via a micro-controller system that can be accessed from different types of interfaces. Each interface has been designed to cover all the requirements of users in a typical radio or TV station. The following chapter describes the operation of the **PRONTO_ISDN** with each of these options.

II.1. PRONTO_ISDN FRONT PANEL

The most complete control interface is found on the front panel of the equipment. The keys on it provide access to all the equipment configuration and control functions and the display provides status information (type of encoding used, line status, etc).

The keypads provided are:

- a) **Menu** keypad – comprising the \leftarrow , \uparrow and \Rightarrow keys for scrolling through the menu and the MENU/ENTER key for selecting the required action or parameter.
- b) **Dialling** keypad – telephone keypad for dialling the number to be called on the selected line.
- c) **Call control** keypad – two groups of three lighted keys called CALL 1, END 1, ON AIR 1, CALL 2, END 2 and ON AIR 2; the first group is assigned to line 1 and the second to line 2. These keys are used for the most usual tasks such as calling, hanging up or transferring a call to the programme (ON AIR).

II.1.1 CALL1 & CALL2 KEYS



These keys provide direct access to the menu dialling options (CALL 1 to call on line 1 and CALL 2 for line 2) provided that the corresponding line is free. On pressing one of these, the user may dial a number directly on the keypad on the front panel, re-dial the last number dialled or select a number entered in the telephone book. Each key has a LED to indicate the following situations:

- Light off: Line disconnected
- Light on: Line connected
- Flashing light: Call in progress or incoming call detected.

If an incoming call is detected on a line configured for manual answer, you can accept the call by pressing the CALL key for that line.



Once the line is connected, you can press the CALL key of the respective line to display the number called if the call was made from the unit, or the calling number in the case of an incoming call.

II.1.2 END1 & END 2 KEYS

END
1END
2

These keys terminate the call on the line corresponding to each key. The key's LED goes out to show that its associated line is disconnected.



The key must be pressed on during at least 1 second.

II.1.3 ON AIR 1 & ON AIR 2 KEYS

ON
AIR 1ON
AIR 2

These keys switch the audio to/from the programme. When the key's LED is on, this indicates that the call is on air, that is, the audio received on this line is present at the audio output for this communications line. Depending on the compression mode being used, once a communication is established and synchronised, the **PRONTO_ISDN** will be configured as follows:

- **Communication in G711 mode:** When the communication is established, the call is on hold (ON AIR disabled).
- **Communication in G722 mode:** When the communication is established, the call is on air (ON AIR enabled).
- **Communication in MPEG mode:** When the communication is established, the call is on air (ON AIR enabled).

The following restrictions apply to the use of these keys:

- When a line is disconnected, pressing the ON AIR key for that line will not change the status of the respective switch and LED.
- If the communication is established with an external telephone, the audio input/output for that line will be the telephone, and therefore

the ON AIR key for the line and its remote control are disabled. They are only re-enabled when the user returns control to the front panel.



When the remote control is enabled, the ON AIR 1 and ON AIR 2 keys are disabled.

II.2. DISPLAY

The **PRONTO_ISDN** display comprises the status panel, which continually shows the status of the two lines, and the menu display, showing different options in a tree structure.

II.2.1 STATUS DISPLAY:

Once the equipment is suitably initialised, the display controller starts to show the status of each line, switching between the status for line 1 and that for line 2 every 5 seconds. The information shown for each line includes the line concerned (L1 or L2), its status (connected or not), compression mode, input audio, telephone control and audio synchronisation state ("FRAMED" means synchronised). When the user carries out any action on a line, or an event occurs that requires the user's attention, the status display warns the user of this situation, such as, for example, when a call is being made and an incoming call is detected on a line (RING). The following are two examples of display messages.

L	1			C	O	N	N	E	C	T	E	D			
	G	7	2	2		F	R	A	M	E	D		-	A	-

L	2			C	O	N	N	E	C	T	E	D			
	G	7	1	1		F	R	A	M	E	D		-	A	-

The meaning of each field that can be potentially displayed in the status display is briefly explained in Chapter II.6 of this manual.



By pressing Key 1 or 2 on the front panel, status of line 1 or line 2 will be immediately shown on the display.

II.2.2 MENU DISPLAY:

When ENTER/MENU is pressed, the equipment's menu is displayed. If no other action takes place during a few seconds, the display automatically switches back to the status display.

The different menu options are explained below in detail. You are recommended to follow these explanations along with the menu tree included at the end of this manual.

II.3. MENU

The user can use the menu of options on the display to control all the functions necessary for working with the **PRONTO_ISDN**. The \leftarrow , \uparrow and \Rightarrow keys are used to move through the different options, and the MENU/ENTER key is used to select the required option.

\Rightarrow : Moves to the menu option to the right. When the last option is selected, this key returns the selection to the first one, i.e., the leftmost one. The selected option is shown on the display between braces ({}).

\leftarrow : Moves to the menu option on the left. When the first option is selected, this key moves the selection to the last one, i.e., the rightmost one. The selected option is shown on the display between braces ({}).

\uparrow : Steps up one level in the menu. When at the topmost level, this exits the menu function and returns to the status display for each line.

MENU/ENTER : Enables the option between braces and passes program control to the subroutine associated with that option.

The menu is entered by pressing the **ENTER/MENU** key, causing the following to appear on the display:

						M	E	N	U					
{	L	1	}	L	2		C	O	N	F		I	N	F

The arrow keys $\leftarrow \Rightarrow$ are used to move from one option to another; for example, if the right arrow key is pressed, the menu item L2 appears enclosed between braces ({}). The selected option will always appear between braces. If, at the end of the line, \Rightarrow is pressed, the selection point will return to the start of the line. Likewise, if L1 is selected and \leftarrow is pressed, INF will be selected. This applies to all the menu screens.

When ENTER is pressed, the menu for the selected option, enclosed in braces, is displayed.

The meaning of the above options is:

- **L1**: Functions and parameters for configuring Line 1.
- **L2**: Functions and parameters for configuring Line 2.
- **CONF**: General equipment configuration parameters, affecting both Line 1 and Line 2.
- **INF**: More information for each line, additional to the data shown on the status display.

The parts of the tree corresponding to the L1 and L2 options are exactly the same for modes G711, G722 or MPEG MONO 64 Kbps, however if the selected mode is MPEG JS/DUAL layer 64 Kbps or any MPEG mode to 128 Kbps, the CODEC option for L2 will be disabled and the display will show when it is selected:

If the selected bit rate is 128 Kbps:

	I	N		1	2	8	K		M	O	D	E			
	N	O	T		A	V	A	I	L	A	B	L	E		

If the selected bit rate is 64 Kbps and the selected L1 audio mode is Joint Stereo or Dual :

	I	N		S	T	R	O		M	O	D	E			
	N	O	T		A	V	A	I	L	A	B	L	E		

The following gives details of each of these selections.

II.3.1 {L1}

On selecting L1, the display shows:

L	1					M	E	N	U						
{	C	A	L	L	}		T	A		C	O	D	E	C	

- **CALL**: Dialling functions for line 1.
- **TA**: Terminal adaptor configuration for line 1.
- **CODEC**: Audio encoding/decoding mode configuration for line 1.

Selecting these leads to:

II.3.1.1 {L1}--{CALL}

On pressing ENTER/MENU with the CALL option selected, the display shows:

L	1					M	E	N	U						
{	D	I	A	L	}	R	D	I	A	L		B	O	O	K

- **DIAL:** This option is selected for dialling directly on the telephone keypad on the front panel. Dialling may be carried out from an external telephone when this mode is selected from the CONF option on the main menu.

AUTOMATIC DIALLING: Two specific control lines in the DB15 connector on the rear panel allow automatic dialling (see II.5 REMOTE CONTROL).

- **RDIAL:** Dial the last number dialled. This number is lost when the equipment is switched off.
- **BOOK:** Call a number stored in the telephone book.

The following are further details of these options:

II.3.1.1.a {L1}--{CALL}--{DIAL}

When this option is selected, the display shows:

L	1					D	I	A	L						
1	2	3	4												

As the user dials numbers, these appear on the display and a flashing cursor moves to the right. The ← key can be used to erase numbers and to move the flashing cursor to the left, up to the starting point. Up to 16 digits can be entered.

When the user presses the ENTER/MENU key, the equipment starts to dial the number on the screen on line 1; this number will be stored in memory for possible re-calls with the redial option.



CALL PROCEDURE AT 128 Kbps:

Differently to Pronto 2 ver < 7.0, in Mpeg modes at 128 kbps the second call will not be performed automatically, making it necessary to insert the second number to be dialled through line 2.

The following is displayed:

L	1		C	A	L	L	I	N	G	.	.	.			
1	2	3	4	5	6	7	8								

When the action is complete, i.e., communication is established or it is decided that this is not possible, the system leaves the menu and returns to the display for normal operation.

Once communication has been established, it is possible to see the number that was dialled by pressing the CALL1 key located on the front panel of the equipment. The following message will be briefly displayed.

L	1		C	O	N	N	E	C	T	E	D		T	O	
1	2	3	4	5	6	7	8								

II.3.1.1.b {L1}--{CALL}--{RDIAL}

This is the re-dialling option. When it is selected and ENTER/MENU is pressed, the display shows the last number dialled on this line. If no number has been dialled previously, the area of the display used to show the number remains blank.

L	1					R	D	I	A	L					
1	2	3	4	5	6	7	8								

When ENTER/MENU is pressed, the system operates in the same way as for DIAL.

II.3.1.1.c {L1}--{CALL}--{BOOK}

Option for entering the telephone book, select a number and dial. The telephone book can hold up to 16 numbers. The CONF option on the main menu contains an option for entering numbers. When BOOK is chosen, the display shows:

L	1					B	O	O	K		{	1	}		
3	3	3	4	5	6	7	8								

The number between braces is the index number in the telephone book; the \Rightarrow and \Leftarrow keys can be used to move through the book to higher and lower index numbers, respectively. At index number 16, if the \Rightarrow key is pressed, the first index number is displayed again. If \Leftarrow is pressed at the first number, the system moves to the last level. The \Uparrow key moves one level up.

Once the index number is selected, pressing ENTER/MENU will cause the system to dial it in the same way as for DIAL and RDIAL.

II.3.1.2 {L1}--{TA}

Used for selecting parameters to configure the terminal adaptor. The display shows:

L	1		T	E	R	M	I	N	A	L		A	D	A	P
{	L	N	U	M	}	C	N	U	M			A	N	S	W

- **LNUM:** Abbreviation for "LOCAL NUMBER". This option allows the local number associated with line 1 to be configured. Configuring the local number of a line means that the line will only respond to calls to that number. Thus, if multiple numbers are available on the same line, a different local number can be assigned to each line, providing automatic line selection (and selection of its associated audio) from the calling terminal, or if there are several devices on the same bus, select one of them (sub-addressing). The local number is recorded in the equipment's non-volatile memory.
- **CNUM:** Abbreviation for "CALLING NUMBER". This option allows up to three calling numbers to be configured for each line. The calling number means that when the equipment receives a call, it will check that it has been made from one of the numbers programmed with this option. It will only answer calls from one of these three numbers if automatic answer mode has been selected. In manual answer mode, the calling number will be displayed on the screen and the user can decide whether or not to answer it. The programmed calling numbers are independent for each line. Thus, a call filter can be programmed to prevent the entry of unwanted calls. Calling numbers are recorded in the equipment's non-volatile memory.
- **ANSW:** Abbreviation for "ANSWER" Used to select the answer mode for the **PRONTO_ISDN**.

The following are further details of these options:

II.3.1.2.a {L1}--{TA}--{LNUM}

This option assigns a local number to line 1 or de-assigns it. When a local number has been assigned to a line, the terminal adaptor will only answer if that number is called. When ENTER/MENU is pressed, the display shows:

L	1					L	N	U	M						
	{	N	O	N	E	}		N	U	M	B	E	R		

If NONE is selected, no local number will be assigned to the line.
If NUMBER is selected, the display changes to:

L	1			L	O	C	A	L		N	U	M	B	E	R
-															

As numbers are entered at the dialling keypad, they appear on the display as with the dialling processes. When ENTER/MENU is pressed, the number is assigned as the local number.



When a local number is associated to a line, the equipment will only answer calls made to that number and will not notify anything else even if the call is made to another number assigned to the same basic rate interface. Consequently, if the equipment does not answer a call, check the programmed local number.

II.3.1.2.b {L1}--{TA}--{CNUM}

This option allows one or more telephone numbers (up to 3) to be assigned as the telephone numbers to which the equipment will answer when they call. This prevents the equipment from answering an unwanted call (for example, a caller who has dialled the wrong number). When a call is received, the caller's telephone number is stored in a variable which is accessible to the micro-controller. This will decide whether or not to answer, depending on whether or not it matches one of the programmed numbers. When ENTER/MENU is pressed with the CNUM option selected, the display shows:

L	1					C	N	U	M						
		{	O	F	F	}			O	N					

If the OFF option is selected and the line is in auto answer mode, the call will be answered automatically regardless of the number making the call.

If the calling numbers are enabled, the display will show the same contents but "ON" will be enclosed in braces instead of "OFF". If they are enabled, and in addition, the line is in auto answer mode, any call on this line will be answered or rejected depending on whether the calling number matches one of the numbers stored in the table. Enabling the calling number table thus serves as a call selection filter. The equipment

contains a non-volatile memory so that even when it is switched off, the numbers in the telephone book do not disappear. The book has a capacity for three numbers (for each line).

When L1-TA-LNUM-ON is selected, the following appears on display:

L	1			C	A	L	L	I	N	G		N	U	M		1
-																

The number at the top right of the display shows the index number in the book of the calling number; the \Rightarrow and \Uparrow keys can be used to step through the book to higher or lower index numbers, respectively. At index 3, pressing the \Rightarrow key will move to the first index and from the first index, pressing the \Uparrow key will move up a level in the menu tree. The user may change the numbers stored in the table using the keypad on the front panel.

As the user dials numbers, these appear on the display and a flashing cursor moves to the right. The \Leftarrow key can be used to erase numbers and to move the flashing cursor to the left, up to the starting point. Up to 16 digits can be entered per number.



When the calling number is enabled and a call is received from a number that does not match any of those programmed, the following is displayed:

**"REJECT CALL L1
CALLING NUMBER:Y"**



When a call is received and the answer mode is manual, the calling number is displayed and the user can decide to answer or not (by pressing the CALL key of the line on which the call has been received).

II.3.1.2.c {L1}--{TA}--{ANSW}

This option allows the answering mode to be selected: MANUAL, in which the system advises of an incoming call and waits for the user to answer it; and AUTO, in which the equipment itself answers the call.

L	1					A	N	S	W	E	R					
	{	A	U	T	O	}		M	A	N	U	A	L			

If the answer mode for line 1 is manual, the screen will have the same contents, but MANUAL will be enclosed in braces.

If the AUTO mode is chosen, the line's answer mode will be automatic. In this answer mode, if the calling numbers are enabled and the calling number does not match any one of those stored in the corresponding table, the call will be rejected, in which case the display will advise of the situation.


If the MANUAL mode is chosen, calls are answered manually, so that when a call is received on a line, the associated CALLx LED will flash to show the situation; and to establish the connection, the user presses the CALLx key.

II.3.1.3 {L1}--{CODEC}

This option allows the encoding/decoding mode for line 1 to be selected. The display will show:

	1		C	O	D	E	C								
{	G	7	1	1	}	G	7	2	2		M	P	E	G	

- **G711:** G711 encoding mode, suitable for telephone voice communications (3.1 kHz). This is the mode to select when calling a terminal connected to the analog telephone network (PSTN).
- **G722:** G722 encoding mode for high quality voice communications (7 kHz).
- **MPEG:** MPEG Layer II or Layer III compression mode. It allows to select the bit rate (64 or 128 Kbps), the audio mode (MONO, DUAL or JOINT STEREO) and wished compatibility (J52, CCSTELOS).

 **Layer III only available in Pronto_ISDN 3**

II.3.1.3.a {L1}--{CODEC}--{G711}

The G711 will work under A law standard when the selected ISDN protocol is EURO_ISDN. In the rest of the ISDN protocols, the G711 selected will be under the Mu Law.

□ Echo Canceler in G711:

When a line is configured in G711, it is possible to activate an automatic electric echo canceler. The electric echo canceler can be activated or deactivated from the frontal panel by pressing the following keys:

- By pressing *1 : The Echo Canceler is activated-deactivated in line 1.
- By pressing *2 : The Echo Canceler is activated-deactivated in line 2.

The display will show the echo canceler state of the following way:

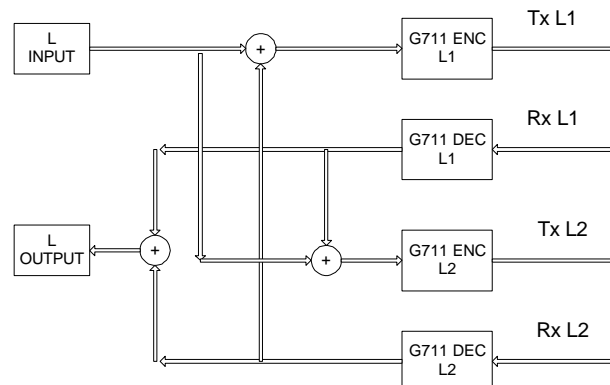
L	2			I	D	L	E										
	G	7	1	1				C	E	C	O		-	A	-		

L	2			C	O	N	E	C	T	E	D						
	G	7	1	1		F		C	E	C	O		-	A	-		

The state of the echo canceler is saved in a non-volatile memory to be recovered when the unit is restarted or when the G711 mode is selected again.

□ Multiplex (multiconference) in G711 communications:

This special configuration allows to establish a multiconference between the PRONTO and two G711 communications. When this mode is selected the L input and output is the only audio interface is working. The following block diagrams explain how it works:



It is only available in G711 communications. The user must be sure that both lines are disconnected before to activate it. By pressing *3 in the front panel keys the multiplex mode is activated-desactivated. When it is activated, the display indicates it of the following way:

L	2			I	D	L	E					M	U	X
	G	7	1	1								-	A	-

The state of the multiplex mode is saved in a non-volatile memory to be recovered when the unit is restarted or when the G711 mode is selected again.



When the external analog telephone is using one of the two lines and the multiplex mode is activated, this line will be disconnected of the multiplex.

II.3.1.3.b {L1}--{CODEC}--{G722}

When ENTER/MENU is pressed, the G722 compression mode is selected directly ; no further configuration is required.

II.3.1.3.c {L1}--{CODEC}--{MPEG}



Given the Pronto_ISDN 2 ver 7.0 or later doesn't support layer III, when MPEG is selected the menu goes to the {RB} (binary rate) option.

▪ PRONTO_ISDN 3 MPEG MENU:

L	1			C	O	D	E	C			M	P	E	G		
{	L	A	Y	E	R	}		A	U	X	_	D	A	T	A	

The LAYER option allows the line to be configured for any MPEG Layer II or Layer III encoding mode.

The AUX_DATA option enables or disables the sending/receiving of auxiliary data in MPEG mode.

When L1-CODEC-MPEG-LAYER is selected, the display shows:

L	1			C	O	D	E	C			M	P	E	G		
L	A	Y	E	R	:				I	I		{	I	I	I	}

Here it is possible the selection of the Layer. Once the Layer is selected, the menu goes to the bit rate selection menu:

L	1		C	O	D	E	C		M	P	E	G			
B	R	(	K	B	)	:	{	6	4	}		1	2	8	

Dependig on the selected bit rate, the user will have different options.

▪ PRONTO_ISDN 2 Ver 7.0 or Later MPEG MENU:

L	1		C	O	D	E	C			M	P	E	G		
	{	R	B	}			A	U	X	_	D	A	T	A	

Here it is possible the selection of BIT RATE. Once the bit rate is selected, the menu goes to the bit rate selection menu:

L	1		C	O	D	E	C		M	P	E	G			
B	R	(	K	B	)	:	{	6	4	}		1	2	8	

Dependig on the selected bit rate, the user will have different options.

❑ 64 Kbps

Selecting the 64 Kbps option and pressing the ENTER/MENU key will allow the selection of the MONO, DUAL or JOINT STEREO mode. The menu on the display will show:

L	1		M	P	E	G		M	O	D	E				
{	M	O	N	O	}		J	S			D	U	A	L	

Once the mode is selected, press the ENTER/MENU key to select the sampling frequency (48 , 32 or 24 KHz). The menu on the display will show:

L	1		M	P	E	G		M	O	N	O				
{	4	8	K	}		3	2	K		2	4	K			



The MPEG Layer II MONO mode at a sampling frequency of 24 Khz is compatible with CDQPrima configured as follows:

ENCODER: Bit Rate = 64 Kbps; Algorithm MPEG L2; Sample rate 24 Khz; ALG MODE Mono; LINE FMT 1 LN.

DECODER: INDEP, that is, independent of encoder.

❑ 128 Kbps

Selecting the 128 Kbps option and pressing the ENTER/MENU key will allow the selection of the inverse multiplexing protocol. Depending on the Layer selected, these are the available options:

If we have selected Layer II, the display will show:

		L	1			T	X			M	O	D	E		
		J	5	2		{	C	C	S	T	E	L	O	S	}

If we have selected Layer III, the display will show:

		L	1			T	X			M	O	D	E		
		-	-	-		{	C	C	S	T	E	L	O	S	}

▪ J52

When J52 is selected the inverse multiplexing protocol used is the standard J52.

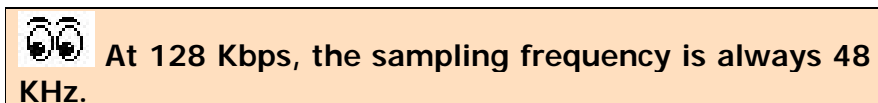


▪ CCSTELOS

When CCSTELOS is selected (it is equivalent the TELOS option in PRONTO_ISDN 2) the transmission mode is compatible with CCS and TELOS codecs.

Once the transmission mode is selected, the menu goes to the audio mode selection menu (MONO, JOINT STEREO or DUAL). The display will show:

L	1		M	P	E	G		M	O	D	E				
{	M	O	N	O	}		J	S			D	U	A	L	





The CCSTELOS mode permits the compatibility between the PRONTO_ISDN and the TELOS ZEPHYR configured as ISO/MPEG Layer II JOINT STEREO and two 64 Kbps channels. This mode is compatible as well with the following CCS units:

CDQ2000-> The encoder configured in ISO/MPEG Layer II JOINT STEREO and sampling frequency of 48 Khz. The decoder can work independent or not. In previous version to the 4.0, the decoder must be configured independent of the encoder (configuration of swithc n° 6 in UPPER position).

CDQPrima->ENCODER:Bit Rate= 128 Kbps; Algorithm MPEGL2, CCN or CCS; Sample rate 48 Khz; ALG MODE Joint Stereo; LINE FMT CCS 2 LN.

DECODER:Independent or not.

▪ AUXILIARY DATA

When L1-CODEC-MPEG-AUX_DATA is selected, the display shows:

L	1		C	O	D	E	C		M	P	E	G		D	T
{	O	F	F	}	3	0	0		2	4	0	0		9	6

If the sending/receiving of auxiliary data in MPEG mode is enabled, 300, 2400 or 9600. The data format would be asynchronous, 8 data bits, 1 START/STOP bit, no parity.



ABOUT AUXILIARY DATA

- * Auxiliary data are available only in line 1.
- * Auxiliary data are included in the MPEG audio frame, at the expense of replacing any audio bits. 300 bps is a good balance between audio quality and transmission rate.
- * The format of auxiliary data included in the MPEG frame is compatible with that employed in the CDQ Prima audio codec family from CCS (GENERIC, MUXRATE=300, 2400 or 9600, DSPRATE = 300, 2400 or 9600, MUXMODE= NOMUX).

II.3.2 {L2}

When L2 is selected, the system enters the tree structure for configuring line 2. The part of the menu tree for options L1 and L2 is identical but some audio modes are not allowed. Any attempt to gain access to it will be rejected with a message stating that this is not possible its selection.



RESTRICTIONS RELATED TO THE USE OF L2:

* If the L1 selected bit rate is 64 Kbps, the available modes are: G711, G722 and MPEG MONO Layer II or Layer III.

* If the L1 selected mode is MPEG 64 Kbps JS or DUAL, Pronto_ISDN will not work as a dual codec. However, it is possible to establish a communication through line 2. The audio sent through line 2 will be the same as the audio sent through line 1. The CODEC option will be disabled.

* If the selected bit rate is 128 Kbps, the CODEC option is disabled.

II.3.3 {CONF}

This main menu option accesses the section for the general configuration of the equipment - those parameters that affect both line 1 and line 2. The display shows:

<	-	-			C	O	N	F			-	-	>	
{	B	O	O	K	}		R	E	M	O	T	E		

The arrows at the sides show that the display can be moved sideways to show two more configuration options for the user. Thus, if the option between braces is BOOK and the ← key is pressed, the display shows:

<	-	-			C	O	N	F			-	-	>	
A	U	D	_	I	N		A	U	T	{	N	E	T	}

If the ⇒ key is pressed in this situation, the screen reverts to the previous state.

- **BOOK:** Telephone book. Allows up to 16 numbers to be saved, each of which can be accessed from either of the two lines. All numbers are saved in non-volatile memory.

- **REMOTE:** Selection of required remote control.
- **AUD_IN:** Selection of analog or digital audio input.
- **AUT:** Activation or disactivation of the automatic search mode.
The automatic search mode can work in two ways:
 - **Independent Mode** (encoder and decoder can work in different modes since only the decoder adopts the compression mode of the unit it is connected to).
 - **Dependent Mode** (encoder and decoder adopt the compression mode of the unit they are connected to).
- **NET:** Selection of the ISDN protocol if the version of terminal adapter allows it.

II.3.3.1 {CONF}--{BOOK}

							B	O	O	K		{	1	}	
3	3	3	4	5	6	7	8	-							

Provides access to the telephone book in order to edit one or more numbers. The user can enter up to 16 numbers in this book. These numbers can then be used to make calls. The equipment contains a non-volatile memory so that even when it is switched off, the numbers are retained in the telephone book.

The number in the top right of the display is the index in the telephone book; the \Rightarrow and \Uparrow keys can be used to move through the telephone book to higher or lower index numbers, respectively. If \Rightarrow is pressed at index number 16, the system moves to the first index number. If \Uparrow is pressed at index number 1, the system moves to the previous level in the menu tree structure. The user can change the numbers stored in the table using the keypad on the front panel.

As the user dials numbers, these appear on the display and a flashing cursor moves to the right. The \Leftarrow key can be used to erase numbers and to move the flashing cursor to the left, up to the starting point. Up to 16 digits can be entered per number.

When the user presses ENTER/MENU, the number currently shown on the display is saved in the memory at the position indicated by the index number. Once saved, further index numbers can be selected and filled. To exit and return to the CONF menu, press the up arrow key.

II.3.3.2 {CONF}--{REMOTE}

There are two possibilities: a) Enable the external analog telephone connected to the front panel; and b) Enable ON_AIR remote control functions related to the DB15 connector on the rear panel.

					C	O	N	F		R	E	M	O	T	E
{	P	H	O	N	E	}		C	O	N	T	R	O	L	

The PHONE option can only be enabled (ON) or disabled (OFF); and the same applies to CONTROL. Therefore, the selection of either leads to the following displays:

					C	O	N	F		R	E	M	O	T	E
P	H	O	N	E		{	O	N	}		O	F	F		

					C	O	N	F		R	E	M	O	T	E
C	O	N	T	R	O	L		{	O	N	}	O	F	F	

The ↑ key returns to the CONF menu.

For detailed information on the operation of both options, see the chapters: EXTERNAL TELEPHONE AND REMOTE CONTROL CONNECTOR.

II.3.3.3 {CONF}--{AUD_IN}

These options allow the user to select between analog or digital audio input (AES/EBU format).

					C	O	N	F		A	U	D	I	O	
{	A	N	A	L	O	G	}	A	E	S	/	E	B	U	

If the AES/EBU audio input is selected, the display will be the same except that the AES/EBU option will be enclosed in braces. If AES/EBU is selected, it will be necessary to select the synchronism:

	C	O	N	F		A	U	D	I	O		D	I	G	
S	Y	N	C	:	{	A	U	D	I	O	}	E	X	T	

The AUDIO option selects synchronism with the digital audio input, and The EXT option selects synchronism with a external clock



Any audio compression modes work at 48, 44.1 y 32 KHz of sampling frequency.

Information on the audio input is stored in the non-volatile memory so that it is retained even when the equipment is switched off.

The audio interface selected is shown on the bottom right of the status screen as follows.

With the analog input selected:

L	1		I	D	L	E									
	G	7	2	2									-	A	-

With the digital input selected:

L	1		I	D	L	E									
	G	7	2	2									-	D	-

II.3.3.4 {CONF}--{AUT}

	C	O	N	F			A	U	T	O	M	A	T	I	C
	{	O	F	F	}		D	E	P			I	N	D	

The automatic searching mode means that the decoder will look for the audio compression algorithm used by the unit in the other end. There are two options for the automatic searching: DEPENDENT MODE or INDEPENDENT MODE.

Depending on the selected option, the encoder will be configured in a different way once the decoder has got the audio synchronization.

- ❑ **DEPENDENT MODE:** The encoder will work in the same mode that the decoder. **This automatic searching mode only works if the PRONTO_ISDN receives a call.**
- ❑ **INDEPENDENT MODE:** The encoder will work always in the selected mode by the user. With this mode selected, it is possible to establish communications working with different transmissions and receptions audio modes. **This operation mode works either if the unit make a call or a call is received.**

The independent mode allows the following encoder-decoder configurations:

LINE 1		LINE 2	
ENCODER	DECODER	ENCODER	DECODER
G722	G722 or MPEG LII/LIII 64	G722	G722 or MPEG LII/LIII 64
MPEG LII/LIII 64 MONO	G722 or MPEG LII/LIII 64	MPEG LII/LIII 64 MONO	G722 or MPEG LII/LIII 64
G722	G722 or LII/LIII 64	G711	G711
G711	G711	G722	G722 or MPEGLII/LIII 64
MPEG LII/LIII 64 MONO	G722 or MPEG LII/LIII 64	G711	G711
G711	G711	MPEG LII/LIII 64 MONO	G722 or MPEG LII/LIII 64
G722 or MPEG LII/LIII "CCSTELOS"	MPEG LII/LIII "CCSTELOS"	G722 or MPEG LII/LIII "CCSTELOS"	MPEG LII/LIII "CCSTELOS"
MPEG LII/LIII "CCSTELOS"	G722 or MPEG LII/LIII 64	MPEG LII/LIII "CCSTELOS"	G722 or MPEG LII/LIII 64

When the unit is searching which means that it still has not framed, the word SEARCH will show on the display. During that time, the user will be unable to access the menu. The CALL1 and CALL2 keys will be disabled as well as the external phone or the remote control (DB15 connector). The following message will appear on the display if the user tries to access one of the non available options:

	N	O	T		A	V	A	I	L	A	B	L	E		
	S	E	A	R	C	H	I	N	G	.	.	.			

In automatic mode, certain restrictions apply to the reception of calls.

- If the unit is working in MPEG 128 Kbps or MPEG 64 Kbps Dual or Joint Stereo mode, the incoming calls in G711 will be rejected either if the automatic mode is disactivated or in independent mode.
- If the unit is working in MPEG 128 Kbps or MPEG 64 Kbps Dual or Joint Stereo mode and has one line connected, the incoming calls in G711 will be rejected even if the automatic mode selected is the independent mode.

In both cases, the following message will show on the display:

R	E	J	E	C	T		C	A	L	L		L	2		
G	7	1	1		N	O	T		A	L	L	O	W	E	D



The equipment stores the encoding/decoding mode for both lines, so that if it is changed as a result of an automatic search, the initial mode can be recovered when both lines are disconnected.

11.3.3.5 {CONF}--{NET}

This option allows to configure the ISDN terminal adapter with different protocols.

There are two version of terminal adapters: EURO_ISDN terminal adapter and Universal terminal adapter. The PRONTO_ISDN recognizes automatically the terminal adapter enabling the available options only when the universal adapter is detected.

When the NET option is selected, the display will show:

<	-	-		C	O	N	F		N	E	T		-	-	>
{	E	I	S	D	N	}			A	T	T	5	E	S	S

The arrows at the sides show that the display can be moved sideways to show two more configuration options for the user. Thus, if the option between braces is EISDN and the ← key is pressed, the display shows:

<	-	-		C	O	N	F		N	E	T		-	-	>
{	D	M	S	1	0	0	}			N	A	T	1		

The ISDN protocols are the following:

- **EISDN:** This is the type of ISDN available in Europe and in most countries except for North America. It hasn't SPID.
- **AT&T 5ESS.**
- **Northern Telecom DMS100.**
- **National ISDN 1 o NAT1:** This kind of switch is also provided by AT&T and Northern Telecom.

The AT&T 5ESS, DMS 100 and NAT1 request the **SPID** (Service Profile Identification) numbers to the ISDN network company. These numbers (one of each B channel) are provided by the telephone company and they must be introduced always that one of these kind of ISDN is selected.

The PRONTO_ISDN will request them once one of these ISDN protocols are selected:

L	1		S	P	I	D		N	U	M	B	E	R		
-															

L	2		S	P	I	D		N	U	M	B	E	R		
-															

Once an ISDN type is selected, the terminal adapter will be loaded with the new software. The display will show the following:

L	O	A	D	I	N	G		T	A						



It isn't necessary to reset the unit or to disconnect the ISDN to perform this operation.

If the terminal adapter version only admits EURO_ISDN, when the user selects the option NET, the display will show the following message:

	I	N		E	I	S	D	N							
	N	O	T		A	V	A	I	L	A	B	L	E		

II.3.4 {INF}

This option allows to get information about the software version and some configuration parameters of the lines.

II.3.4.1 {INF}--{VERSION}

When this option is selected, the display shows information about the software version:

M	I	C	R	O	:	7	.	0					-	-	>
D	S	P	c	o	d	:	7	.	0						

[	T	A	:	3	.	1	0]					-	-	>
D	S	P	d	e	c	:	7	.	0						

II.3.4.2 {INF}--{LINE}

When this option is selected, the following message is displayed:

L	I	N	E		I	N	F	O	R	M	A	T	I	O	N
		{	L	1	}				L	2					

The \Leftarrow , \Rightarrow and ENTER keys can be used to obtain the following additional information about the lines:

- CN -> YES or NO, depending on whether the call filter (CALLING NUMBER) is enabled.
- LN -> If a local number has been entered, it is shown at the bottom of the display.
- If the answering mode is manual or automatic.
- The sampling frequency (permanent at 48 KHz).
- The cycle redundancy code (always ON).
- Auxiliary data enabled/disabled in MPEG modes and the data speed selected (300, 2400 or 9600 bps).

L	1		C	N	:	N	O			A	U	T	-	-	>
L	N	:	5	3	0	0									
F	s	:	4	8				C	R	C	:	Y	E	S	
A	U	X	_	D	A	T	A	:	3	0	0		-	-	>

The content of the display changes according to the current operation mode: In G711/G722 mode, the information on the sampling frequency, auxiliary data and CRC cannot be displayed. In MPEG mode, this information can be displayed and the arrow displayed on the right indicates that it is available.

II.4. EXTERNAL TELEPHONE

When PHONE ON is selected from the CONF REMOTE menu of the **PRONTO_ISDN**, this enables the use of an analog telephone connected to the RJ11 socket on the front panel. From this moment on, the system controller activates access to the multi-frequency tone decoder connected to the telephone and can receive commands from the telephone, using its dialling keys.

The use of the telephone depends on the configuration mode of the equipment. The main difference is that the telephone can replace an audio I/O channel in G711,G722 or MPEG MONO modes, and this is not possible in the rest of MPEG modes. The use and control features of the telephone for both cases, are described below.

II.4.1 USE IN G711,G722 & MPEG Layer II/III MONO

II.4.1.1 MAKING A CALL

- 1.- Lift the handset.
- 2.- Select the line:
 - Press * and then **1** to select line 1
 - Press * and then **2** to select line 2

The display of the **PRONTO_ISDN** will show the DIAL screen for the selected line and the audio for line 1 will be that of the telephone. At the same time, the telephone will receive a dialling invitation tone.

- 3- Dial the number. The display will show the number as it is dialled.

- 4.- Press * to make the call.

The display will then show information regarding the progress of the call. If the call is established, PH1 and PH2 will be displayed at the top to show the line assigned to the telephone. A intermittent tone will be heard on the telephone until the communication is established.

II.4.1.2 TERMINATING A CALL

The call is terminated simply by hanging up the telephone, provided that it has control of the line (this is so if PH1 or PH2 is displayed).

II.4.1.3 PLACING A CALL ON HOLD

Once the telephone call is established, pressing * will transfer the audio automatically to the main input and output (the XLR connectors of the **PRONTO_ISDN**), with the output in the MUTE state (call on hold).



Once a call has been placed on hold, hanging up the telephone will not terminate the call. When the telephone no longer has control of the line PH1 or PH2 is no longer displayed.

II.4.1.4 TRANSFERRING THE CALL TO THE PROGRAMME (ON AIR)

Once communication has been established using the telephone, pressing # will automatically transfer the audio to the main input and output (the XLR connectors of the **PRONTO_ISDN**) in the ON AIR position. If the system is on hold, the audio output will be activated.



Once a call has been transferred to the programme, hanging up the telephone will not terminate the call. When the telephone no longer has control of the line PH1 or PH2 is no longer displayed.

II.4.1.5 RETRIEVING THE CALL

Simply press "*" and the line number ("1" or "2"). When a line is recovered with the telephone, the switch for the respective line is taken to "on hold" state and the LED of the respective ON AIR key goes off (if it was previously lighted up). The two lines cannot be controlled at the same time with the telephone. If one is under control, it must be released and the other line recovered, to gain control of the latter. Pressing "*" will release any control of a line, and then the other line can be recovered.

II.4.1.6 ANSWERING AN INCOMING CALL:

When a line in manual answer mode receives a call, the LED of the CALL key will flash. If the handset is lifted then or was already unhooked, the telephone will gain control of the line which received the call. If the equipment is in MPEG mode, the answering mode is automatic and the external telephone is not relevant.

II.4.1.7 SELECTING AN ENCODING MODE

With the line disconnected it is possible to select the encoding mode by pressing consecutively the following key combinations:

ENCODING MODE	MODE	LINE	DTMF CODES
G711		1	# 1 1
		2	# 2 1
G722		1	# 2 1
		2	# 2 2
MPEG LAYER II 64	MONO	1	2 7 # 1 3
		2	2 7 # 2 3
	JOINT STEREO	1	2 8 # 1 3
	DUAL	1	2 9 # 1 3
MPEG LAYER III 64	MONO	1	3 7 # 1 3
		2	3 7 # 2 3
	JOINT STEREO	1	3 8 # 1 3
	DUAL	1	3 9 # 1 3
MPEG LAYER II 128 J52	MONO	1,2	2 7 # 1 4
	JOINT STEREO	1,2	2 8 # 1 4
	DUAL	1,2	2 9 # 1 4
MPEG LAYER II 128 CCSTELOS	MONO	1,2	2 7 # 1 6
	JOINT STEREO	1,2	2 8 # 1 6
	DUAL	1,2	2 9 # 1 6
MPEG LAYER III 128 CCSTELOS	MONO	1,2	3 7 # 1 6
	JOINT STEREO	1,2	3 8 # 1 6
	DUAL	1,2	3 9 # 1 6

 Layer III only available in Pronto_ISDN 3

II.4.2 USE IN MPEG JS/DUAL LAYER II/III 64 KBPS & 128 Kbps MPEG MODES

II.4.2.1 MAKING A CALL

- 1.- Lift the handset.
- 2.- Select the line:
 - Press * and then **1** to select line 1

The display of the **PRONTO_ISDN** will show the DIAL screen for line 1.

- 3- Dial the number. The display will show the number as it is dialled.
- 4.- Press * to make the call.

The display will then show information regarding the progress of the call. Contrary to the previous case, the audio is not controlled by the telephone, so the display will not show any relevant information.

II.4.2.2 TERMINATING A CALL

- Press * and then **1** to hang up line 1 (and line 2 if it is connected).
- Press * and then **2** to hang up line 2.

II.4.2.3 PLACING A CALL ON HOLD OR ON AIR

- Press **#** and then **1** to toggle the "ON AIR" state of line 1 (and of line 2 if it is connected).



Since the ON_AIR2 key is not enabled in MPEG modes, the combination of "**#**" and "**2**" is not allowed and would result in the following message:

	I	N		M	P	E	G		M	O	D	E			
	N	O	T		A	V	A	I	L	A	B	L	E		

II.4.2.4 ANSWERING AN INCOMING CALL

Not allowed.

II.4.3 SELECTING AN ENCODING MODE

The encoding mode is selected the same way as in the previous case.

II.5. REMOTE CONTROL

II.5.1 RS232 INTERFACE

The **PRONTO_ISDN** can be remotely controlled from a PC using a specific application for its control or from a dedicated terminal. The DB9 connector has the following pinout:

PIN	SEÑAL	PIN	SEÑAL
1	NC	6	NC
2	Tx 232	7	NC
3	Rx 232	8	NC
4	NC	9	NC
5	GND		

For connection to a PC

PC	PRONTO
Pin 2	Pin 2
Pin 3	Pin 3
Pin 5	Pin 5

II.5.2 CONTROL DEDICATED LINES

A DB 15 connector is provided on the rear panel of the **PRONTO_ISDN** for remote control access. The following table shows the pinouts of this connector.

PIN	SEÑAL	PIN	SEÑAL
1	REM_ON_AIR 1	9	L_REM_CALL 1
2	REM_ON_AIR 2	10	L_REM_CALL 2
3	AUTOM_DIAL_L1	11	L_REM_ACT
4	AUTOM_DIAL_L2	12	FRAMED_1
5	RESERVED	13	FRAMED_2
6	RESERVED	14	RESERVED
7	RESERVED	15	RESERVED
8	GND		

II.5.2.1 PRONTO_ISDN INPUT LINES

ON AIR:

Specific control lines may be used from a remote point to place calls ON AIR or to select the encoding mode for each line, simply by grounding the signals.

REM_ON_AIR 1: Grounding this signal sets line 1 ON AIR.

REM_ON_AIR 2: Grounding this signal sets line 2 ON AIR.

AUTOMATIC DIALLING:

Specific control lines may be used to automatic dialling. By grounding AUTOM_DIAL_L1 a call is made automatically through the LINE 1 to the number saved in the phone book index 1 and by grounding AUTOM_DIAL_L2 a call is made automatically through the LINE 2 to the number saved in the phone book index 2.

II.5.2.2 PRONTO_ISDN OUTPUT LINES

These are TTL-type signals with the following functions:

L_REM_CALL 1: Indicates a call on line 1 when intermittent; line disconnected when at 0 and line connected when at 1.

L_REM_CALL 2: Indicates a call on line 2 when intermittent; line disconnected when at 0 and line connected when at 1.

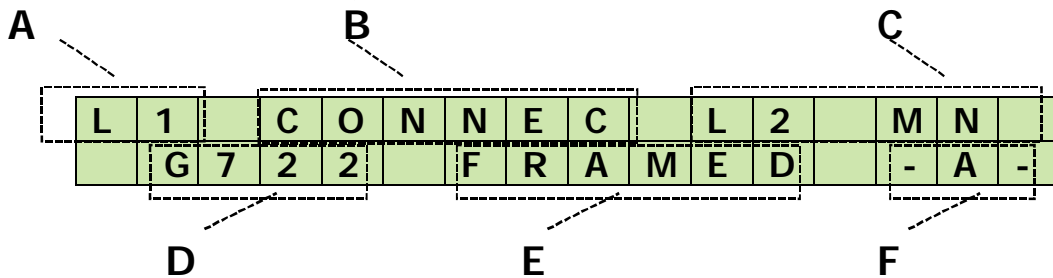
L_REM_ACT: 1 when the remote control signals are activated.

FRAMED_1: Line 1 audio synchronized when at 1.

FRAMED_2: Line 2 audio synchronized when at 1.

II.6. DISPLAY INFORMATION FIELDS

In normal operation, the display shows the current line status information. This information is arranged as follows:



A) Shows the line to which the information refers, L1 or L2.

B) Shows the state of the communications line:

IDLE: DISCONNECTED

CONNECTED

RING: RECEIVING A CALL

CALLING

C) It shows two kind of information:

- The selected layer and audio mode:

L2: Layer II

L3: layer III

MN: Mono

JS: Joint Stereo

DU: Dual

- When the audio input/output associated with one of the two lines is connected to the external telephone (after pressing * 1 with the external telephone enabled), this field of the display will show PH1 for line 1 and PH2 for line 2. Otherwise, this field is blank.

L	1		C	O	N	N	E	C		L	2		P	H	1
	6	4	K			F	R	A	M	E	D		-	A	-

D) Encoding mode selected:

G711, G722, 64 Kbps, J52, CCSTE.

E) This field shows whether the decoder is synchronised (FRAMED) or not (blank). Once a connection is established, audio is not available at the output until the decoder is synchronised. This field also indicates that the echo canceller in G711 is activated, by showing the word "CECO" and the letter "F" to confirm that it is framed.

F) Shows the audio input selected on the menu and a simple audio input level indicator:

The audio input selected is indicated as follows:

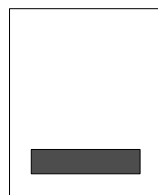
- A**- : Analog audio input
- D**- : AES/EBU digital audio input.

The input audio level detector could be used to monitor if there is audio in the input of the unit. In the lower right corner where you can see the kind of input audio selected there are two characters which show that as follows:

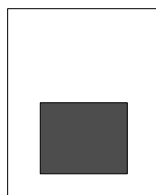
L	1			C	O	N	N	E	C	T	E	D			
	G	7	2	2		F	R	A	M	E	D		■	A	■

The character on the left is for the left channel and the right character for the right channel.

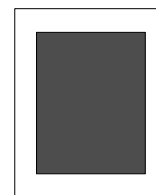
The icons used are the following ones:



NO AUDIO



AUDIO



OVERLOAD

II.6.1 DISPLAY MESSAGES

The display shows another series of messages whose meaning is:

1)

L	1		C	A	L	L	I	N	G	.	.	.			
1	2	3	4	5	6	7	8	9							

A call has been made but has still not connected.

The bottom line shows the number called.



Once the connection has been established, the number called can be displayed by pressing the CALL1 key if the call has been made on line 1, or CALL2 if it is on line 2. When the key is pressed, the display shows:

L	1		C	O	N	N	E	C	T	E	D		T	O	
1	2	3	4	5	6	7	8	9							

2)

L	1		R	I	N	G									
1	2	3	4	5	6	7	8	9							

A call has been received on the line shown (L1 or L2).

The bottom line shows the caller's number.



Once the connection has been established, the caller's number can be displayed by pressing the CALL1 key if the call has been received on line 1, or CALL2 if it is on line 2. When the key is pressed, the display shows:

L	1		C	O	N	N	E	C	T	E	D		T	O	
1	2	3	4	5	6	7	8	9							

3)

R	E	J	E	C	T		C	A	L	L		L	1		
C	A	L	L	I	N	G		N	U	M	B	E	R	:	Y

A call has been received on the line shown (L1 or L2) but has been rejected since the call filter (caller number ON) is enabled and the caller's number does not match any of the numbers programmed.

4)

R	E	J	E	C	T		C	A	L	L		L	2		
G	7	1	1		N	O	T		A	L	L	O	W	E	D

- If the unit is working in MPEG 128 Kbps or MPEG 64 Kbps Dual or Joint Stereo mode, the incoming calls in G711 will be rejected either if the automatic mode is disactivated or in independent mode.
- If the unit is working in MPEG 128 Kbps or MPEG 64 Kbps Dual or Joint Stereo mode and has one line connected, the incoming calls in G711 will be rejected even if the automatic mode selected is the independent mode.

5)

N	O		P	H	Y	S	I	C	A	L		I	S	D	N
					L	I	N	E							

There are ISDN connection problems. Very probably the equipment is not connected to the ISDN line (BRI) or the cable is faulty.

6)

	I	N		1	2	8	K		M	O	D	E			
	N	O	T		A	V	A	I	L	A	B	L	E		

This message appears when an attempt is made to access to CODEC option in L2, or push ON AIR 2 key when in Line 1 is selected 128 Kbps.

7)

	I	N		S	T	R	O		M	O	D	E			
	N	O	T		A	V	A	I	L	A	B	L	E		

This message appears when an attempt is made to access to CODEC option in L2, or push ON AIR 2 key when in Line 1 is selected a DUAL or Joint Stereo 64 Kbps mode.

8)

	N	O	T		A	V	A	I	L	A	B	L	E		
	S	E	A	R	C	H	I	N	G	.	.	.			

This message appears when an attempt is made to enter the menu during an automatic search.

9)

P	R	E	S	S		E	N	T	E	R		K	E	Y	
T	O		G	O		I	N	T	O		M	E	N	U	

This message appears after exiting the menu or when the equipment is switched on.

II.7. FREQUENTLY-ASKED QUESTIONS

❑ Why doesn't the equipment receive calls made to our number?

1. If the equipment is not connected correctly to an ISDN socket, it cannot receive any calls. Even though the ISDN connection is apparently correct, the line status can be checked by making a call. If the line does not respond correctly, the following message is displayed:

N	O		P	H	Y	S	I	C	A	L		I	S	D	N
					L	I	N	E							

2. If the equipment is configured with a local number for a line, it will reject any call to any other number without the user noticing. The local number serves to differentiate between multiple devices connected to the same number. The solution is to select the NONE option in the terminal adapter configuration menu (see Chapter 2.3 -CONF - REMOTE).

3. If the equipment's call filters are activated for a line (CNUM activated), all calls to that line will be rejected if they do not match those of the filter. When a call is rejected, the display shows:

R	E	J	E	C	T		C	A	L	L		L	1		
C	A	L	L	I	N	G		N	U	M	B	E	R	:	Y

❑ Why don't the ON AIR1 and ON AIR2 audio switches work?

1. If the equipment's remote control is active, it will be the remote control that handles the status of the switches (and LEDs), and the ON AIR1 and ON AIR2 keys are disabled (see Chapter 2.3 -CONF - REMOTE).

2. If the control for a line is taken by the telephone, the ON AIR switch for that line is disabled.

❑ Why doesn't the telephone work?

If, after the telephone has been correctly connected to the front panel, it does not work, check the menu to see whether it has been enabled (see Chapter 2.3 - CONF - REMOTE).

❑ Why is audio connected to the analog inputs not sent to the remote end?

1. If the audio selected is digital, the audio sent to the remote end will be that which enters via the digital audio connector in the AES/EBU format; therefore, if no audio is supplied to the digital input, no audio will be received by the remote end. The status screen displays information on the input audio chosen for each line. -A- indicates that the corresponding line has analog audio selected as its input and -D- denotes digital audio. (See Chapter 3 for the display information fields.)

These values may be changed from the general configuration menu. (see Chapter 2.3 - CONF - REMOTE).

2. If the audio chosen is correct but is still not received at the remote end, check that the control of the line in question is not taken by the telephone, in which case it will be the sound from the telephone's microphone that is sent to the remote end. When the line control is taken by the telephone, the display shows PH1 (if the telephone is controlling the audio on line 1) or PH2 (if the telephone is controlling the audio on line 2). (See chapter 3 for the display information fields.)

To release the control of the line, the call may be left on air (by pressing #) or on hold (by pressing *). When the telephone loses control of the line, the letters PHx disappear from the display (see Chapter 2.3 -CONF - REMOTE).

❑ Why is the audio connected to the digital inputs not sent to the remote end?

1. If the selected audio input is analog, the audio sent to the remote end will be that entering the XLR connectors for analog audio; therefore, if no audio is supplied to these analog inputs, the remote end will not receive any audio. The status display informs on the input audio selected for each line. -A- indicates that the respective line has analog audio selected as its audio input, while -D- indicates that digital audio is selected. (See Chapter 3 for the display information fields.)

These values may be changed from the general configuration menu (see Chapter 2.3 - CONF - REMOTE).

2. If the audio chosen is correct but is still not received at the remote end, check that the control of the line in question is not taken by the telephone, in which case it will be the sound from the telephone's microphone that is sent to the remote end. When the line control is taken by the telephone, the displays shows PH1 (if the telephone is controlling the audio on line 1) or PH2 (if the telephone is controlling the audio on line 2). (See Chapter 3 for the display information fields.)

To release control of the line, the call can be left on air (by pressing #) or the call can be placed on hold (by pressing *). When the telephone loses control of the line, the letters PHx disappear from the screen (see Chapter 2.3 - CONF - REMOTE).

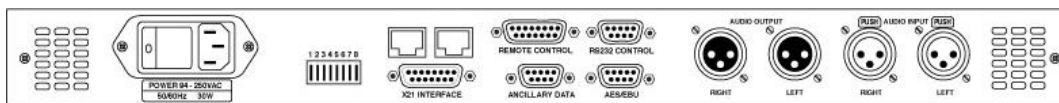
❑ Why does the equipment not synchronise itself to an incoming call or does not enter the automatic search mode?

If the equipment is not configured to automatic mode, it will not automatically search for the audio encoding mode of the incoming call. Therefore, if this mode does not match the mode configured for the line in question, the audio will not synchronise.

❑ Why does the equipment change the encoding mode when a call is disconnected?

If the communication was established via an incoming call, the equipment may change the encoding (decoding) mode for the line in question in order to synchronise with the remote audio but, when the communication ends, the equipment will automatically re-establish the mode that was assigned for the line before the communication took place.

II.8. CONNECTORS



II.8.1 ANALOG AUDIO

PIN	SIGNAL
1	GND
2	+
3	-

II.8.2 DIGITAL AUDIO

PIN	SIGNAL	PIN	SIGNAL
1	AES/EBU IN -	6	AES/EBU IN +
2	GND	7	SYNC IN +
3	SYNC IN -	8	GND
4	GND	9	AES/EBU OUT +
5	AES/EBU OUT -		

II.8.3 AUXILIARY DATA

PIN	SIGNAL	PIN	SIGNAL
1	NC	6	NC
2	Tx	7	NC
3	Rx	8	NC
4	NC	9	NC
5	GND		

II.8.4 REMOTE CONTROL

PIN	SEÑAL	PIN	SEÑAL
1	REM_ON_AIR 1	9	L_REM_CALL 1
2	REM_ON_AIR 2	10	L_REM_CALL 2
3	AUTOM_DIAL_L1	11	L_REM_ACT
4	AUTOM_DIAL_L2	12	FRAMED_1
5	RESERVED	13	FRAMED_2
6	RESERVED	14	RESERVED
7	RESERVED	15	RESERVED
8	GND		

II.8.5 RS232 INTERFACE

PIN	SEÑAL	PIN	SEÑAL
1	NC	6	NC
2	Tx 232	7	NC
3	Rx 232	8	NC
4	NC	9	NC
5	GND		

II.8.6 MICROSWITCHES

Nº	FUNCTION	UP	DOWN
1	BUZZER	OFF	ON
2	COMMUNICATION INTERFACE	TA	X21
3	AUTOM_DIAL OPERATION	AUTOMATIC DIALLING	AUTOMATIC DISCONNECTING
4	X	X	X
5	X	X	X
6	TELEPHONE DTMF CODES	« * » On Hold « # » On Air	« * 0 » On Hold « # 0 » On Air

Pronto 3 ver 3.40 or later and Pronto 2 ver 7.0 or later implement the following special functions:

▪ Microswitch no. 3 :

Automatic hang up. Since this version, it is possible to select two different functionalities for the AUTOM_DIAL remote control pins depending on the configuration of the microswitch nº3:

UP By grounding AUTOM_DIAL_L1 a call is made automatically through LINE 1 to the number saved in the phone book index 1 and by grounding AUTOM_DIAL_L2, a call is made automatically through LINE 2 to the number saved in the phone book index 2.

DOWN By grounding AUTOM_DIAL_L1, line 1 is disconnected and by grounding AUTOM_DIAL_L2 line 2 is disconnected.

▪ Microswitch no. 6 :

New DTMF codes to place a call ON HOLD or ON AIR from the external telephone. Since this version, it is possible to select two different codes depending on the configuration of the microswitch nº6:

UP "*" put a call ON HOLD, "#" put a call ON AIR.

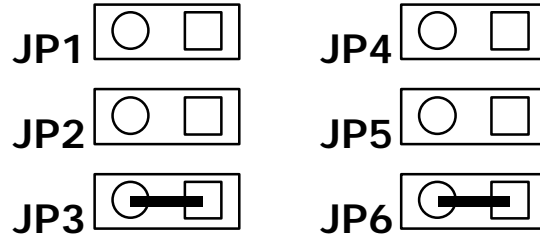
DOWN "* 0" put a call ON HOLD, "# 0" put a call ON AIR.

II.9. JUMPERS

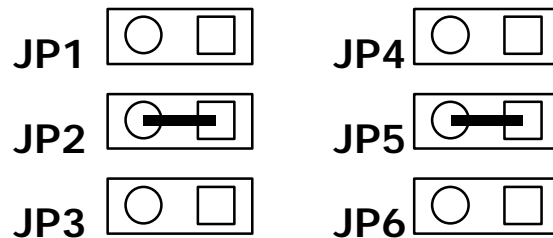
II.9.1 SELECTION OF AUDIO OUTPUT GAIN

The PRONTO_ISDN can be configured for output gains of +0 dB, +4 dB and +6 dB. This configuration only affects the analog audio output. The configuration is carried out using configuration jumpers inside the equipment, near to the XLR audio output connectors, as follows:

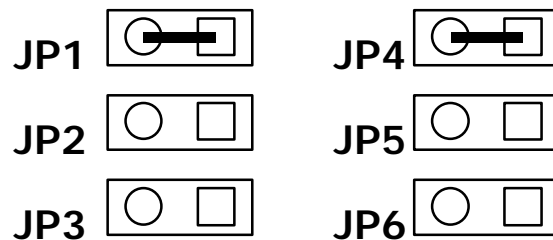
A) 0 dB GAIN



B) +4 dB GAIN



C) +6 dB GAIN



II.9.2 100 OHM RESISTORS IN THE TERMINAL ADAPTER

When the PRONTO_ISDN is connected to a basic access ISDN with a bus configuration and the equipment forms the bus termination, it is necessary to load it with 100 Ohm resistors. These may already be located in the network connector, but if not the PRONTO_ISDN contains internal programming jumpers that allow their insertion. They are easily located, near the RJ45 connectors.



100Ω RESISTORS CONNECTED

APPENDIX A: TECHNICAL SPECIFICATIONS

❑ Stereo audio input:

Balanced analog input:

Maximum input level +18 dBu.

Input impedance 20 kOhm.

Balanced digital input:

AES/EBU format: EIAJ CP-340 type I/IEC-958 Pro

Sampling frequency converter: 1:2 to 2:1.

❑ Stereo audio output:

Balanced analog output:

Maximum output level +18 dBu.

Output impedance 50 Ohm.

Balanced digital output:

AES/EBU format: EIAJ CP-340 type I/IEC-958 Pro

Sampling frequency converter: 1:2 to 2:1.

❑ Audio properties:

Quantification: 24 bits A/D and D/A converter.

S/N ratio > 85 dB typical.

Crosstalk < 80 dB

Phase difference < 0.3°

❑ Compression:

ISO/MPEG Layer II/III (ISO 11172-3) :

Modes: Mono, Dual & Joint Stereo.

Bit rates: 64, 128 kbps.

Fs: 48 KHz (32 KHz y 24 KHz available in 64 Kbps)

G722 (Statistical framing mode)

G711 A Law in EURO_ISDN. Mu Law in the rest of the ISDN protocols.

□ Frequency response:

MODO	BIT RATE	Fs	ANCHO DE BANDA
MPEG LII MONO	64 Kbps	48	20Hz, 10.5 KHz. (+/- 0.5 dB)
MPEG LII MONO	64 Kbps	24	20Hz, 10.5 KHz. (+/- 0.5 dB)
MPEG LII MONO	64 Kbps	32	20Hz, 12 KHz. (+/- 0.5 dB)
MPEG LII DUAL	64 Kbps	48	20Hz, 4 KHz. (+/- 0.5 dB)
MPEG LII DUAL	64 Kbps	24	20Hz, 4.5 KHz. (+/- 0.5 dB)
MPEG LII DUAL	64 Kbps	32	20Hz, 5 KHz. (+/- 0.5 dB)
MPEG LII JS	64 Kbps	48	20Hz, 4.5 KHz. (+/- 0.5 dB)
MPEG LII JS	64 Kbps	24	20Hz, 6 KHz. (+/- 0.5 dB)
MPEG LII JS	64 Kbps	32	20Hz, 6 KHz. (+/- 0.5 dB)
MPEG LII MONO	128 Kbps	48	20Hz, 18-20 KHz. (+/- 0.5 dB)
MPEG LII DUAL	128 Kbps	48	20Hz, 10.5 KHz. (+/- 0.5 dB)
MPEG LII JS	128 Kbps	48	20Hz, 15-20 KHz. (+/- 0.5 dB)
MPEG LIII MONO	64 Kbps	48	20Hz, 15 KHz. (+/- 0.5 dB)
MPEG LIII MONO	64 Kbps	24	20Hz, 11 KHz. (+/- 0.5 dB)
MPEG LIII MONO	64 Kbps	32	20Hz, 15 KHz. (+/- 0.5 dB)
MPEG LIII DUAL	64 Kbps	48	20Hz, 8 KHz. (+/- 0.5 dB)
MPEG LIII DUAL	64 Kbps	24	20Hz, 8 KHz. (+/- 0.5 dB)
MPEG LIII DUAL	64 Kbps	32	20Hz, 8 KHz. (+/- 0.5 dB)
MPEG LIII JS	64 Kbps	48	20Hz, 8 KHz. (+/- 0.5 dB)
MPEG LIII JS	64 Kbps	24	20Hz, 8 KHz. (+/- 0.5 dB)
MPEG LIII JS	64 Kbps	32	20Hz, 8 KHz. (+/- 0.5 dB)
MPEG LIII MONO	128 Kbps	48	20Hz, 20 KHz. (+/- 0.5 dB)
MPEG LIII DUAL	128 Kbps	48	20Hz, 20 KHz. (+/- 0.5 dB)
MPEG LIII JS	128 Kbps	48	20Hz, 20 KHz. (+/- 0.5 dB)
G722	64 Kbps	16	20Hz, 7 KHz. (+/- 0.5 dB)
G711	64 Kbps	8	300Hz, 3.4KHz. (+/- 0.5 dB)

□ Auxiliary data:

RS-232: Asynchronous, 8 bits, no parity, 1 start/stop bit, 300, 2400 or 9600 bps.

In MPEG modes only.

□ Communications:

Dependig on the version: EURO_ISDN terminal adapter or Universal terminal adapter (EISDN, AT&T 5ESS, DMS 100, NAT1).

□ Power supply:

94-250 V AC 50/60 Hz 30 W

Voltages: +5 V, -5 V, +15 V, -15 V

□ Dimensions:

HEIGHT: 1U (4.44 cm)

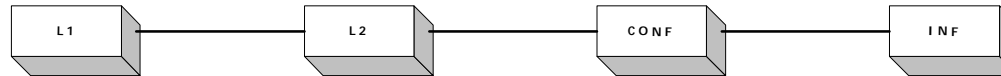
WIDTH: 19" RACK (48.26 cm)

DEPTH: 30 cm.

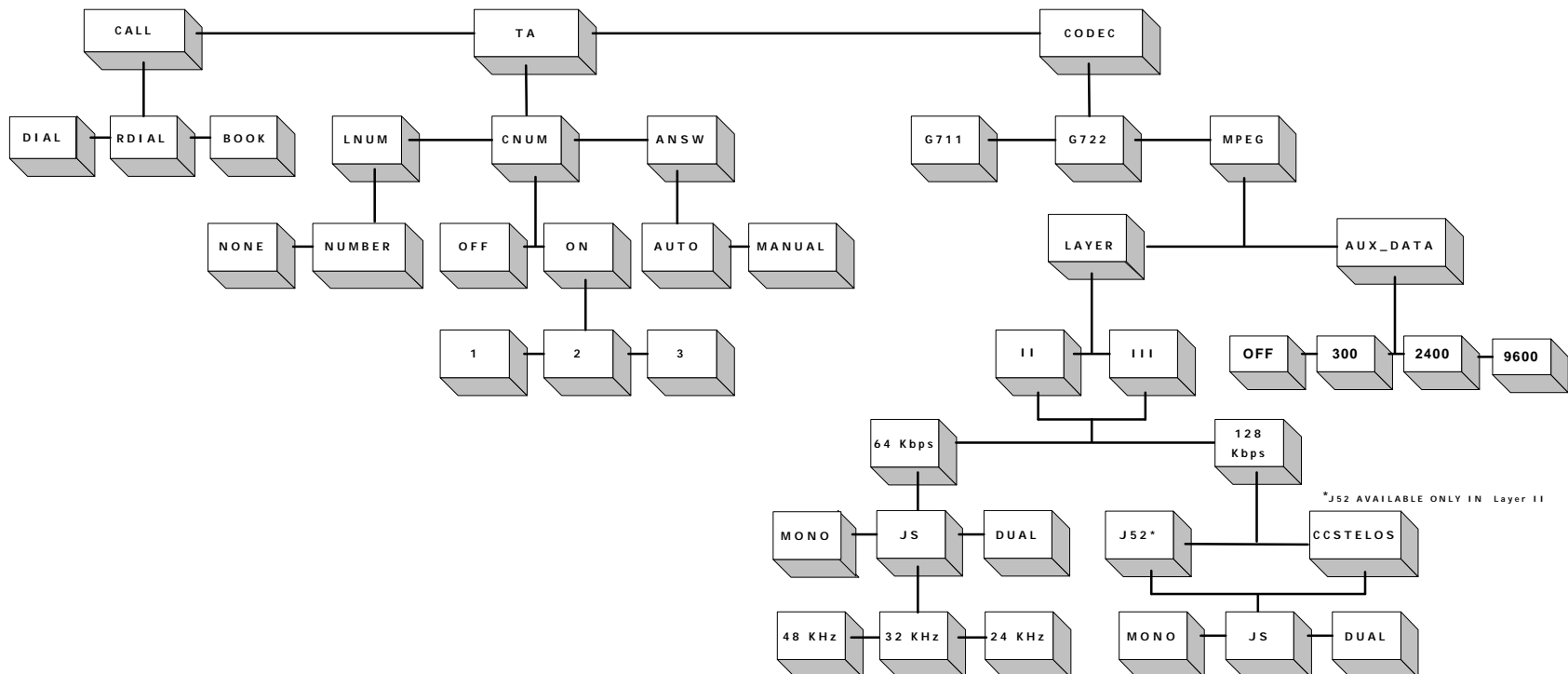
□ Weight: Approximately 3 kg

APENDIX B: PRONTO_ISDN MENU TREE STRUCTURE

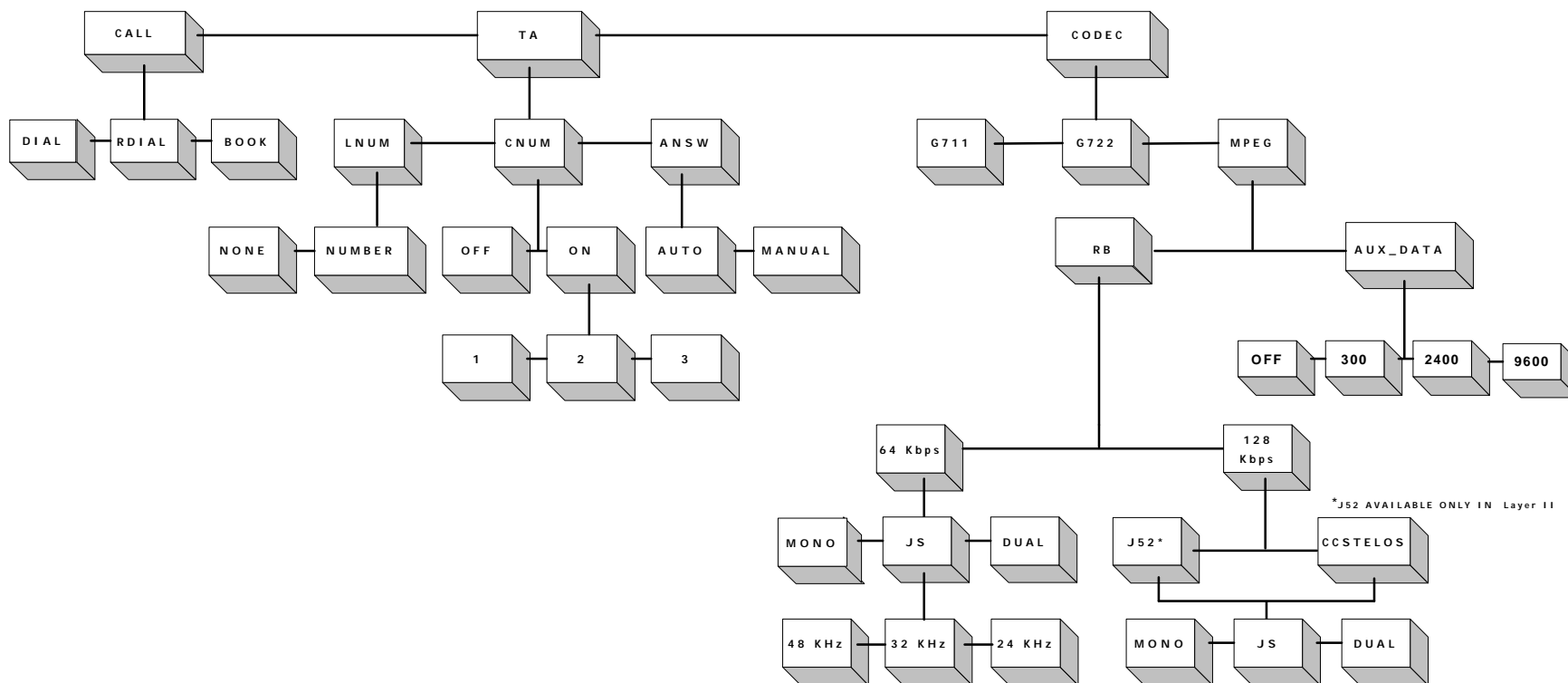
MAIN MENU :



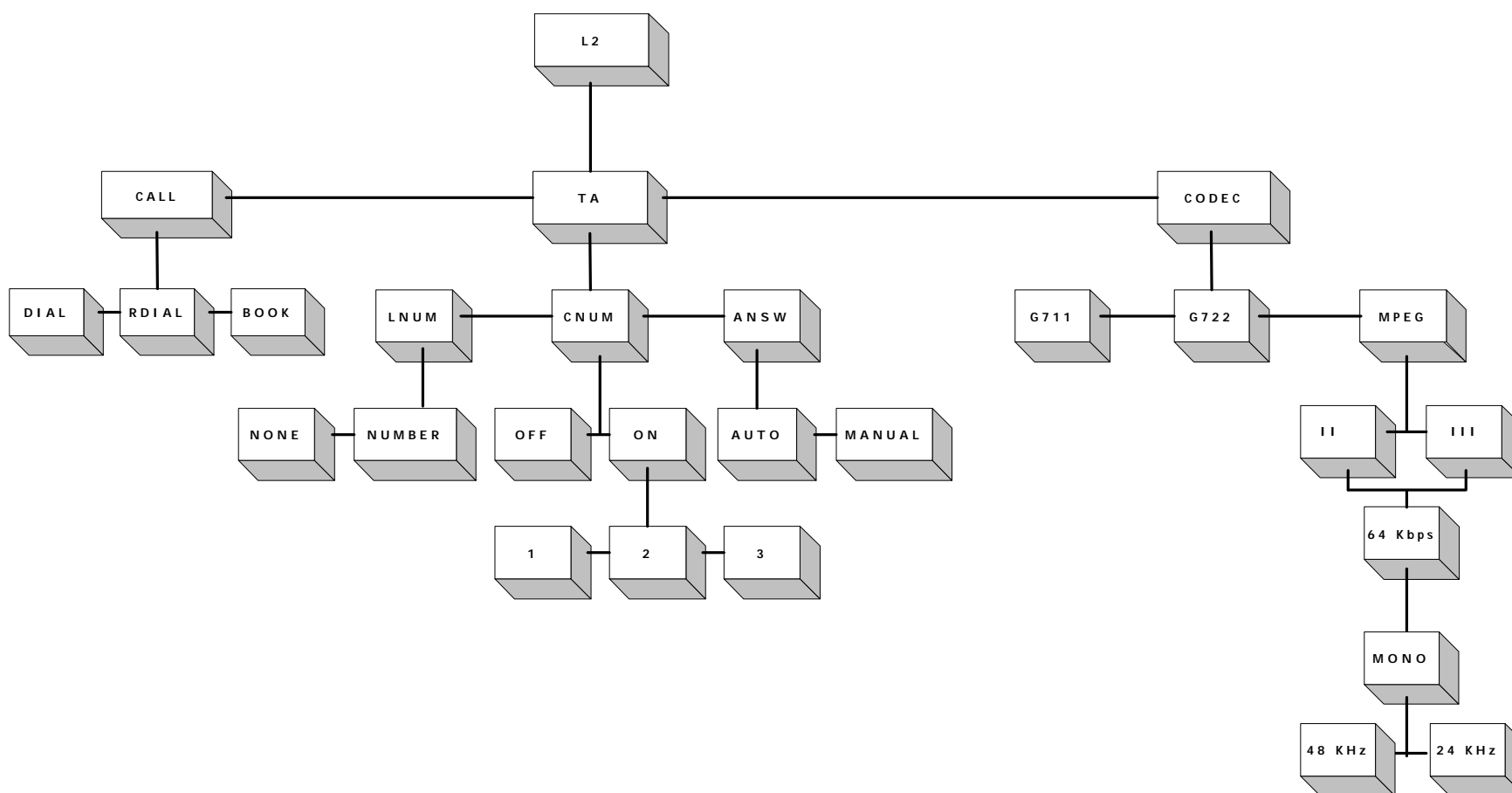
PRONTO 3 L1 MENU :



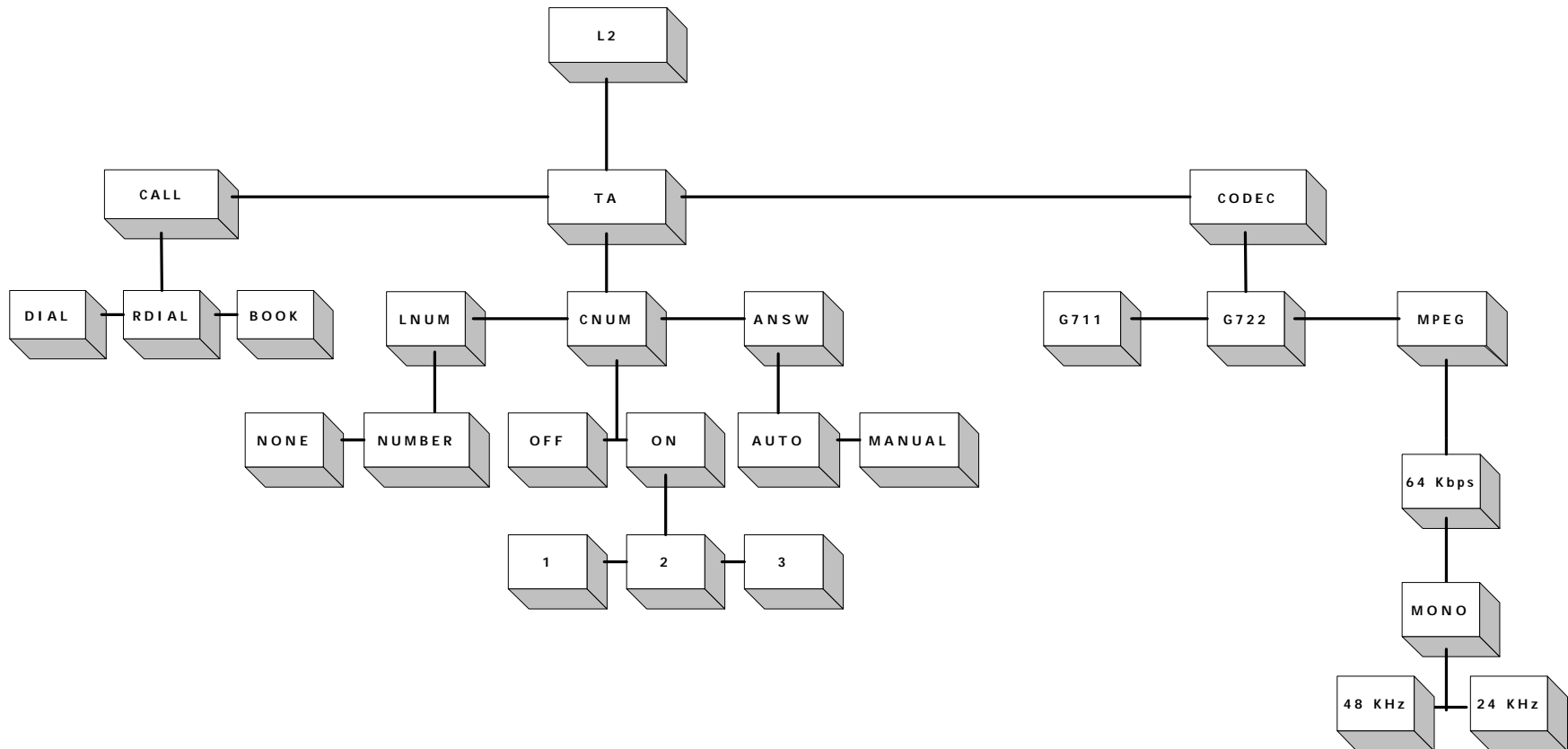
PRONTO 2 L1 MENU:



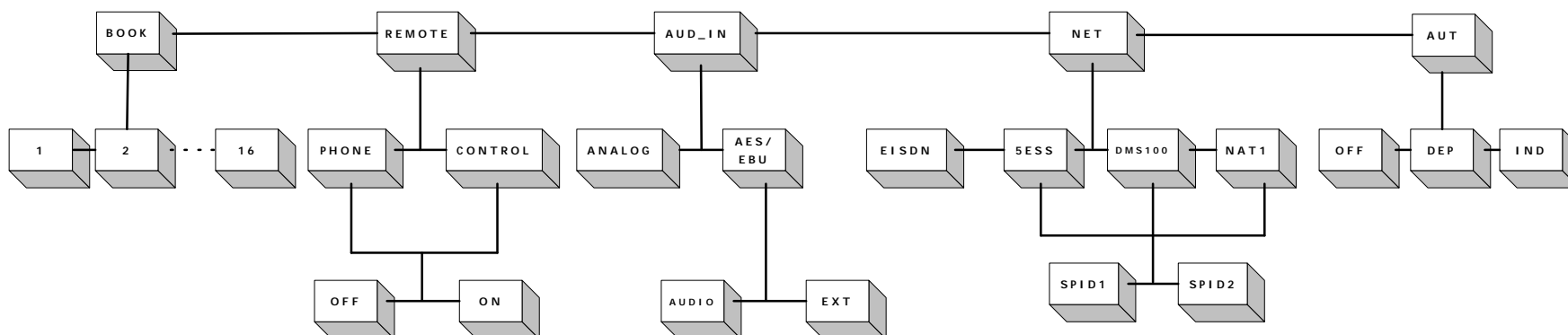
PRONTO 3 L2 MENU:



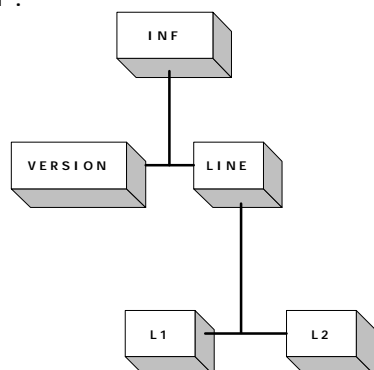
PRONTO 2 L2 MENU:



CONF:



INF:



III. PRONTO_ISDN WITH X21 INTERFACE



The microswitch no.2 is to select the communication interface the user wants to utilise (ISDN terminal adapter or X21 interface). The next chapters of this manual explain the operation of PRONTO_ISDN when the X21 interface is selected. To configure the unit this way, microswitch no.2 must be in DOWN position before starting up the unit.

This configuration increases the possibilities for connecting the equipment to other digital communication networks (dedicated networks, satellite communications).

The equipment automatically detects that the PRONTO_ISDN has been configured with the X21 interface and enters a different operational mode than the one used for ISDN terminal adapter connection.

The method for moving between and selecting the different menu options is the same as when connected to an ISDN with a terminal adapter, using the \Rightarrow , \Leftarrow , \Uparrow and ENTER keys. Note that the rest of the front panel keys are disabled, because, basically, there is no establishment of calls but direct point-to-point communication.

The port speed can be selected from among three values on the X21 menu:

- 64 kbps
- 128 kbps
- 256 kbps

Depending on the speed selected the equipment allows the following audio modes:

- When the equipment is configured at 64 kbps, the mode of line 1 in the menu allows the selection between mode G711, G722, MPEG Layer II / III Mono, Dual or Joint stereo ($F_s = 48, 32$ or 24 KHz)
- When the equipment is configured at 128 kbps, the encoding mode can be selected between MPEG layer II/III Mono, Dual or Joint Stereo Kbps ($F_s = 48$ KHz).
- When the equipment is configured at 256 kbps, the encoding mode can be selected between MPEG Layer II/III Dual or Joint Stereo ($F_s = 48$ KHz).

III.1. X21 PRONTO_ISDN FRONT PANEL

The dialling and control keypad (CALL, END and ON_AIR keys) are disabled when PRONTO_ISDN is working with a X21 interface. Pressing any of the control keys will result in the following message:

	I	N		X	2	1			M	O	D	E			
	N	O	T		A	V	A	I	L	A	B	L	E		

The LED of each control key will operate of the following way:

III.1.1 CALL 1 & CALL 2 KEYS



CALL1 and CALL2 LEDS will always be lighted on (PRONTO_ISDN ready to work).

III.1.2 END 1 & END 2 KEYS



END1 and END2 LEDS will always be lighted off (PRONTO_ISDN ready to work).

III.1.3 ON AIR 1 & ON AIR 2 KEYS



ON_AIR1 and ON_AIR2 LEDS will be lighted on unless the equipment is in 'searching mode' in which case these LEDS will be flashing.



Unlike the use with a terminal adapter, with the X21 interface, when a communication is established in any mode, the audio output is automatically passed on air, so the analog switches that enable or disable audio outputs are disabled.



Unlike the use with a terminal adapter, with the X21 interface, the external telephone and remote control (DB15 connector) is disabled.

III.2. X21 PRONTO_ISDN DISPLAY

The **PRONTO_ISDN** display comprises the status panel, which continually shows the status of the two lines, and the menu display, showing different options in a tree structure.

III.2.1 STATUS DISPLAY:

Once the equipment is suitably initialised, the display controller starts to show the status of each line, switching between the status for line 1 and that for line 2 every 5 seconds. The information shown for each line includes the line concerned (L1 or L2, this one always in IDLE state), speed port selected (64, 128 or 256 kbps), compression mode, input audio and audio synchronisation state ("FRAMED" means synchronised). The following is an example of display message:

L	1		X	2	1		6	4	K	b		K	b		
	G	7	2	2		F	R	A	M	E	D		-	A	-

The meaning of each field that can be potentially displayed in the status display is briefly explained in III.4 section.

III.2.2 MENU DISPLAY:

When ENTER/MENU is pressed, the equipment's menu is displayed. If no other action takes place during the next 17 seconds, the display automatically switches back to the status display.

The different menu options are explained below in detail. You are recommended to follow these explanations along with the menu tree included at the end of this manual.

III.3. X21 PRONTO_ISDN MENU

The user can use the menu of options on the display to control all the functions necessary for working with the **PRONTO_ISDN**. The \leftarrow , \uparrow and \Rightarrow keys are used to move through the different options, and the MENU/ENTER key is used to select the required option.

\Rightarrow : Moves to the menu option to the right. When the last option is selected, this key returns the selection to the first one, i.e., the leftmost one. The selected option is shown on the display between braces ({}).

\leftarrow : Moves to the menu option on the left. When the first option is selected, this key moves the selection to the last one, i.e., the rightmost one. The selected option is shown on the display between braces ({}).

\uparrow : Steps up one level in the menu. When at the topmost level, this exits the menu function and returns to the status display for each line.

MENU/ENTER : Enables the option between braces and passes program control to the subroutine associated with that option.

The menu is entered by pressing the **ENTER/MENU** key, causing the following to appear on the display:

						M	E	N	U					
{	L	1	}	L	2		C	O	N	F		X	2	1

The arrow keys $\leftarrow \Rightarrow$ are used to move from one option to another; for example, if the right arrow key is pressed, the menu item L2 appears enclosed between braces ({}). The selected option will always appear between braces. If, at the end of the line, \Rightarrow is pressed, the selection point will return to the start of the line. Likewise, if L1 is selected and \leftarrow is pressed, X21 will be selected. This applies to all the menu screens.

When ENTER is pressed, the menu for the selected option, enclosed in braces, is displayed.

The meaning of the above options is:

- **L1**: Functions and parameters for configuring Line 1.
- **L2**: Functions and parameters for configuring Line 2.
- **CONF**: General equipment configuration parameters, affecting both Line 1 and Line 2.
- **X21**: Port speed.

The following are further details of these options:

III.3.1 {L1}

Depending on the speed selected (64, 128 or 256 kbps) the menu options will be different as detail below:

III.3.1.1 64 Kbps

When the equipment is configured at 64 kbps, selecting L1 the display shows:

L	1		C	O	D	E	C								
					{	G	7	2	2	}	M	P	E	G	

If the encoding/decoding mode for the line is either G722 or MPEG, the display will be as above but with the line mode between braces.



When the equipment is in 'searching mode', option L1 in the main menu is disabled, and the following message will show when pressing the ENTER/MENU key:

	N	O	T		A	V	A	I	L	A	B	L	E		
	S	E	A	R	C	H	I	N	G	.	.	.			

This option allows the encoding/decoding mode for line 1 to be selected.

The line 1 mode menu allows selection between the next modes:

- **G722:** G722 encoding mode for high quality voice communications (7 kHz).
- **MPEG:** MPEG Layer II or layer III compression mode.

III.3.1.1.a {L1}--{G722}

When ENTER/MENU is pressed, the G722 compression mode is selected directly ; no further configuration is required.

III.3.1.1.b {L1}--{MPEG}



Given the Pronto_ISDN 2 ver 7.0 or later doesn't support layer III, when MPEG is selected the menu goes to the {MODE} option.

▪ PRONTO_ISDN 3 MPEG MENU:

L	1		C	O	D	E	C			M	P	E	G		
{	L	A	Y	E	R	}	A	U	X	_	D	A	T	A	

The LAYER option allows the line to be configured for any MPEG Layer II or Layer III encoding mode.

The AUX_DATA option enables or disables the sending/receiving of auxiliary data in MPEG mode.

When L1-CODEC-MPEG-LAYER is selected, the display shows:

L	1		C	O	D	E	C			M	P	E	G		
L	A	Y	E	R	:			I	I		{	I	I	I	}

When L1-MPEG-LAYER is selected and the equipment is configured at 64 Kbps, the display shows:

		L	1		M	P	E	G		M	O	D	E		
{	M	O	N	O	}		J	S			D	U	A	L	

Selecting the audio mode and pressing the ENTER/MENU key will allow select the sampling frequency (48 KHz, 32 KHz or 24 KHz). The menu on the display will show:

L	1		M	P	E	G		M	O	N	O		F	S	:
{	4	8	K	}		3	2	K		2	4	K			



The MONO mode at a sampling frequency of 24 Khz is compatible with CDQPrima configured as follows:

ENCODER:Bit Rate= 64 Kbps; Algorithm MPEGL2;
Sample rate 24 Khz; ALG MODE Mono; LINE FMT 1
LN.

DECODER: INDEP, that is, independent of encoder.

▪ PRONTO_ISDN 2 Ver 7.0 or Later MPEG MENU:

The MODE option allows the line to be configured for any MPEG Layer II encoding mode:

L	1		C	O	D	E	C			M	P	E	G		
{	M	O	D	E	}		A	U	X	_	D	A	T	A	

Here it is possible the selection of the mode. Once the mode is selected, the menu goes to the mode selection menu:

Selecting the audio mode and pressing the ENTER/MENU key will allow select the sampling frequency (48 KHz, 32 KHz or 24 KHz). The menu on the display will show:

L	1		M	P	E	G		M	O	N	O		F	S	:
{	4	8	K	}		3	2	K		2	4	K			

Auxiliary Data:

The AUX_DATA option enables or disables the sending/receiving of auxiliary data in MPEG mode.

When L1-MPEG-AUX_DATA is selected, the display shows:

L	1		C	O	D	E	C		M	P	E	G		D	T
{	O	F	F	}	3	0	0		2	4	0	0		9	6

If the sending/receiving of auxiliary data in MPEG mode is enabled, 300, 2400 or 9600. The data format would be asynchronous, 8 data bits, 1 START/STOP bit, no parity.



Auxiliary data are included in the MPEG audio frame, at the expense of replacing any audio bits. 300 bps is a good balance between audio quality and transmission rate.



The format of auxiliary data included in the MPEG frame is compatible with that employed in the CDQ Prima audio codec family from CCS (GENERIC, MUXRATE=300, 2400 or 9600, DSPRATE = 300, 2400 or 9600, MUXMODE= NOMUX).

III.3.1.2 128 Kbps

When the equipment is configured at 128 kbps , on selecting L1 the display shows:

L	1		C	O	D	E	C								
-	-	-	-		-	-	-	-		{	M	P	E	G	}

In this case, the user may choose a MPEG encoding (decoding) mode for line 1, while option L2 of the menu is disabled.

When L1-MPEG-LAYER is selected and the equipment is configured at 128 Kbps, the display shows:

L	1		M	P	E	G		M	O	D	E				
	M	O	N	O			J	S			D	U	A	L	

If the encoding/decoding mode for the line is MONO, the display will be as above but with the MONO mode enclosed in braces.

III.3.1.3 256 Kbps

When the equipment is configured at 256 kbps , on selecting L1 the display shows:

L	1		C	O	D	E	C								
-	-	-	-		-	-	-	-		{	M	P	E	G	}

In this case, the user may choose a MPEG encoding (decoding) mode for line 1, while option L2 of the menu is disabled.

When L1-MPEG-LAYER is selected and the equipment is configured at 256 Kbps, the display shows:

L	1		M	P	E	G		M	O	D	E				
	-	-	-				J	S			D	U	A	L	

III.3.2 {L2}

This option will be always deactivated.

III.3.3 {CONF}

This main menu option accesses the section for the general configuration of the equipment - those parameters that affect both line 1 and line 2. The display shows:

						C	O	N	F						
{	A	U	D	_	I	N	}		A	U	T	O	M		

AUD_IN: Selection of analog or digital audio input.

AUT: Activation or disactivation of the automatic search mode.
The automatic search mode can work in two ways:

Independent Mode (encoder and decoder can work in different modes since only the decoder adopts the compression mode of the unit it is connected to) or
Dependent Mode (encoder and decoder adopt the compression mode of the unit they are connected to).

III.3.3.1 {CONF}-{AUD_IN}

These options allow the user to select between analog or digital audio input (AES/EBU format).

						C	O	N	F			A	U	D	I	O	
{	A	N	A	L	O	G	}	A	E	S	/	E	B	U			

If the AES/EBU audio input is selected, the display will be the same except that the AES/EBU option will be enclosed in braces. If AES/EBU is selected, it will be necessary to select the synchronism:

		C	O	N	F			A	U	D	I	O			D	I	G	
S	Y	N	C	:	{	A	U	D	I	O	}	E	X	T				

The AUDIO option selects synchronism with the digital audio input, and The EXT option selects synchronism with a external clock

Information on the audio input is stored in the non-volatile memory so that it is retained even when the equipment is switched off.

The audio interface selected is shown on the bottom right of the status screen (See X21 display informations fields).

III.3.3.2 {CONF}-{AUT}

C	O	N	F		A	U	T	O	M	A	T	I	C
{	O	F	F	}	D	E	P			I	N	D	

The automatic searching mode means that the decoder will look for the audio compression algorithm used by the unit in the other end. There are two options for the automatic searching: DEPENDENT MODE or INDEPENDENT MODE.

Depending on the selected option, the encoder will be configure in a different way once the decoder has got the audio synchronization.

- ❑ **DEPENDENT MODE:** The encoder will work in the same mode that the decoder.
- ❑ **INDEPENDENT MODE:** The encoder will work always in the selected mode by the user. With this mode selected, it is possible to establish communications working with different transmissions and receptions audio modes.

The independent mode allows the following encoder-decoder configurations:

LINE 1	
ENCODER	DECODER
X21 A 64 Kbps	
G722	G722
LII/LIII 64 MONO/DUAL/JS	LII/LIII 64 MONO/DUAL/JS
G722	G722 or LII/LIII 64
LII/LIII 64 MONO	G722 or LII/LIII 64
X21 A 128 Kbps	
LII/LIII 128 MONO/DUAL/ JS	LII/LIII 128 MONO/ DUAL/JS
X21 A 256 Kbps	
LII/LIII 256 DUAL/ JS	LII/LIII 256 DUAL/JS

While the equipment is searching, the display will flash the currently selected encoding mode, the word SEARCH and the ON AIR 1 and ON AIR 2 leds for each of the lines. Likewise, the user cannot access the line 1 in the main menu with the ENTER key. If an attempt is made, the following message is displayed:

	N	O	T		A	V	A	I	L	A	B	L	E		
	S	E	A	R	C	H	I	N	G	.	.	.			

III.3.4 {X21}

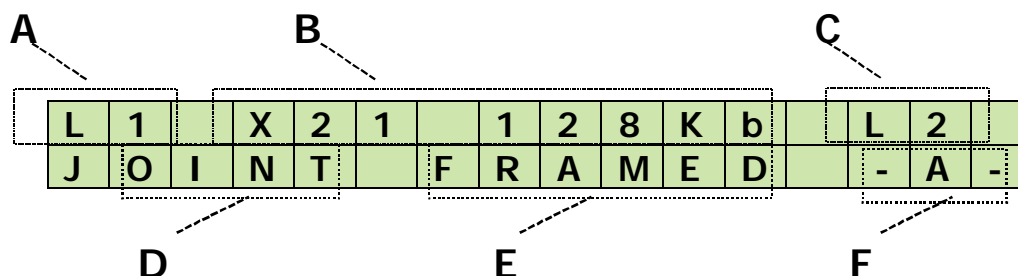
This main menu option accesses the section for the speed port configuration . The display shows:

	B	I	T		R	A	T	E		K	B	P	S		
	{	6	4	}		1	2	8			2	5	6		

If the speed port is either 128 or 256, the display will be as above but with the line mode enclosed in braces.

III.4. X21 DISPLAY INFORMATION FIELDS

In normal operation, the display shows the current line status information. This information is arranged as follows:



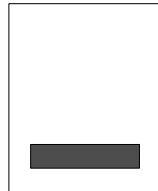
- A)** Shows the line to which the information refers, L1 or L2.
- B)** Shows the port speed:
64 Kb, 128 Kbps or 256 Kbps
- C)** The MPEG Layer selected:
L2: layer III
L3: layer III
- D)** Encoding mode selected:
G711, G722, MONO, DUAL o JOINT STEREO for 64 Kbps.
MONO, DUAL o JOINT STEREO for 128 Kbps.
DUAL o JOINT STEREO for 256 Kbps.
- E)** This field shows whether the decoder is synchronised (FRAMED) or not (blank). Once a connection is established, audio is not available at the output until the decoder is synchronised.
- F)** Shows the audio input selected on the menu:
-A- : Analog audio input
-D- : AES/EBU digital audio input.

The input audio level detector could be used to monitor if there is audio in the input of the unit. In the lower right corner where you can see the kind of input audio selected there are two characters which show that as follows:

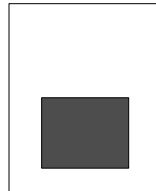
L	1			C	O	N	N	E	C	T	E	D			
	G	7	2	2		F	R	A	M	E	D		■	A	■

The character on the left is for the left channel and the right character for the right channel.

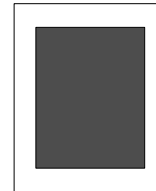
The icons used are the following ones:



NO AUDIO



AUDIO



OVERLOAD

III.5. X21 PORT CONNECTORS

PIN	SIGNAL	PIN	SIGNAL
1	NC	9	TB
2	TA	10	NC
3	NC	11	RB
4	RA	12	NC
5	NC	13	SB
6	SA	14	NC
7	NC	15	NC
8	GND		

III.5.1 X21-X21 CONNECTION

PRONTO X21	X21 LINE INTERFACE
TA	TA
TB	TB
RA	RA
RB	RB
SA	SA
SB	SB
GND	GND

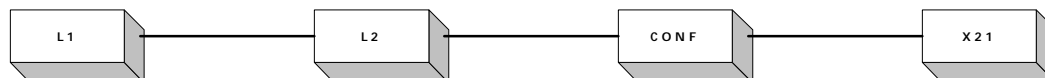
III.5.2 X21-V35 CONNECTION

PRONTO X21	X21 LINE INTERFACE
TA	P
TB	S
RA	R
RB	T
SA	V
SB	X
GND	GND

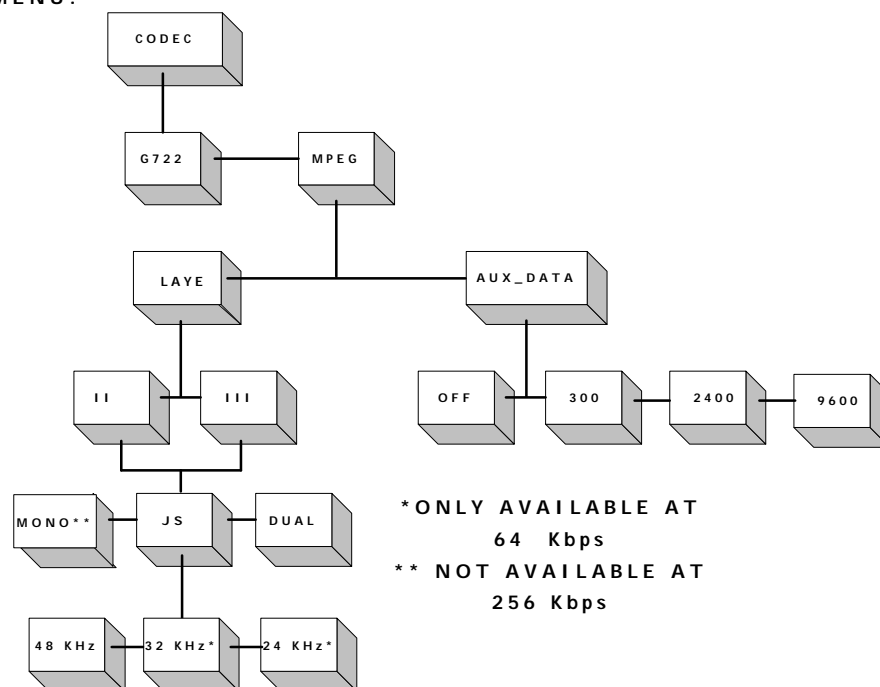


APPENDIX C: PRONTO_ISDN X21 MENU

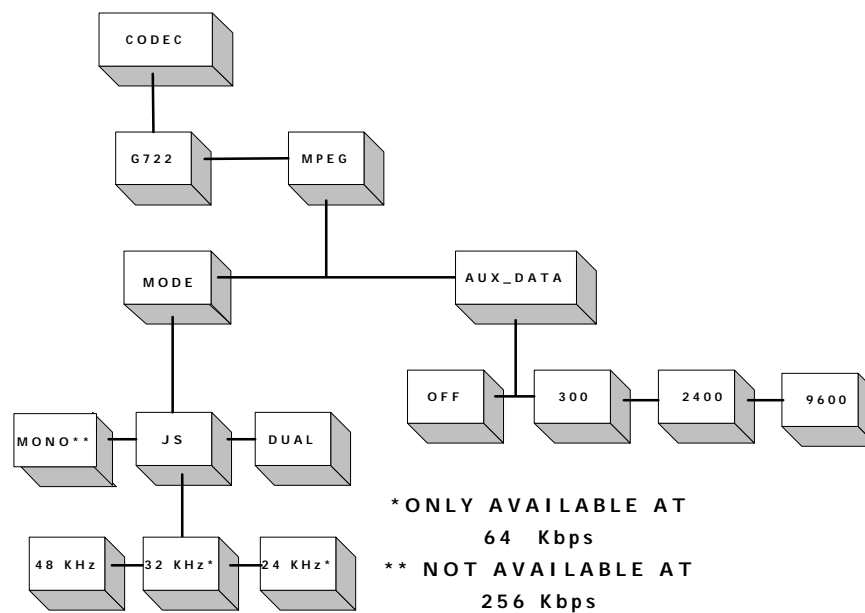
MAIN MENU:



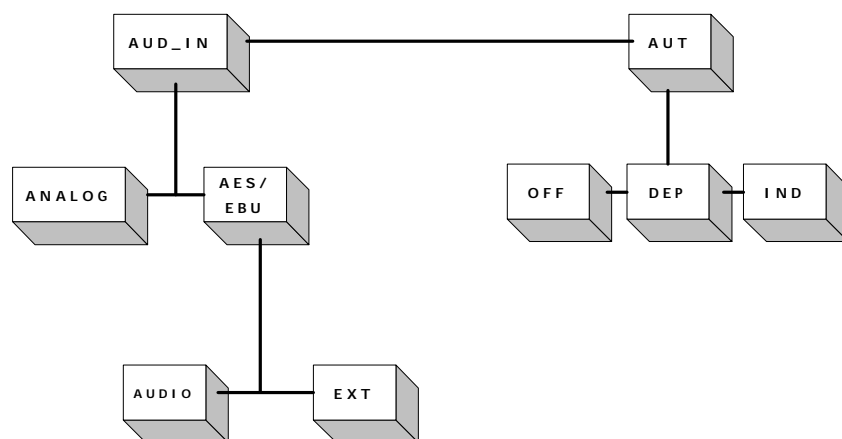
PRONTO 3 L1 MENU:



PRONTO 2 L1 MENU:



CONF :



X 2 1

